



Columbia University  
MAILMAN SCHOOL  
OF PUBLIC HEALTH

**DEPARTMENT OF ENVIRONMENTAL  
HEALTH SCIENCES  
MAILMAN SCHOOL OF PUBLIC HEALTH  
COLUMBIA UNIVERSITY**

**CANDIDATE HANDBOOK  
PhD PROGRAM IN EHS  
2013-2014**

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## Introduction

The PhD program in Environmental Health Sciences (EHS) began in 1997, with the approval of Columbia University as well as the State of New York Board of Regents. Our program seeks to integrate skills in basic biomedical sciences and public health into an interdisciplinary training experience for the next generation of environmental health scientists. PhD candidates will acquire skills in modern scientific methods and techniques to enable them to solve problems related to environmental exposures and their effects on human health. This includes understanding of the physiological, cellular and molecular mechanisms of environmental agents on various disease processes, as well as an appreciation for environmental health risk assessment and policy. The program is designed specifically to develop scientists who can establish successful research careers in academia; however, the skills they acquire through their training can also be applied to careers in government and/or in the private sector.

Each candidate's research is focused on one of the following themes in environmental health sciences: environmental cancer, environmental respiratory disease, environmental neurodegenerative disease, radiation biology or environmental neurotoxicology. Trainees choose from one of three possible tracks: Molecular Epidemiology, Toxicology or Climate & Health. Molecular Epidemiology encompasses research in human populations. As a comparison, Toxicology is generally more mechanistic and laboratory-based. Finally, the Climate & Health specialty focuses on the human health dimensions of climate change. The PhD program utilizes classroom instruction, a journal club, seminars, teaching opportunities, qualifying exams and most importantly, research to train candidates as independent authorities in environmental health sciences. Candidates are also encouraged to enhance their educational experience by taking elective courses related to their thesis topic at the main Columbia campus, as well as the Medical Center campus. Candidates are able to cross-register for classes at any of the Columbia University graduate schools, including, but not limited to, the School of Public Health and the Graduate School of Arts and Sciences.

Upon satisfactory completion of the PhD degree in Environmental Health Sciences, graduates will have achieved competencies enabling them to:

- Conceive, develop and test hypotheses by conducting original research through science methodologies, leading to advances in basic knowledge in environmental health sciences;
- Communicate effectively, through writing and presenting, the results of research findings to the public and other professionals in the following manner:
  - Compose a research article for submission to a peer-reviewed, scientific journal
  - Critically review and analyze professional literature and research findings
  - Report research findings at professional meetings
  - Summarize research findings for a non-technical audience;
- Describe the underlying molecular mechanisms of epidemiological results and environmental exposures;
- Identify significant gaps in the current basic knowledge in environmental health sciences and develop approaches for filling those gaps;
- Utilize grantsmanship skills to develop a cohesive research grant proposal in a standardized format, which incorporates a feasible and appropriate budget, to address significant environmental health studies issues;
- Establish, organize and operate an independent applied research program in environmental health sciences;

- Understand how environmental exposures alter biologic processes and affect the risk of disease development and/or distribution of disease in populations;
- Develop the ability to integrate and apply environmental health sciences across related relevant disciplines in the basic sciences, clinical research and public health;
- Provide leadership in research and management to contribute to the effectiveness and quality of environmental health science policies and programs; and
- Teach graduate students and health professionals in an academic setting via the following methods:
  - Plan seminars and lab presentations;
  - Demonstrate communication and teaching skills by effectively conveying complex information to students (candidates, as teaching fellows, are expected to provide teaching support for one class per academic year);
  - Assist students facing challenges with the material; and
  - Grade papers and exams using graduate-level educational standards.

**Potential Career Paths:** Graduates are qualified to obtain junior and senior positions within health-related organizations. Our graduates also obtain employment in research programs in academic settings. The following is a sampling of career opportunities available to graduates:

- Academic positions within universities and hospitals as faculty members and senior-level researchers.
- Senior roles in research, management or data analysis with governmental regulatory agencies at the local, state, national and international levels.
- Researchers within private industry, including pharmaceutical companies.
- Leadership/senior roles at government organizations involved in environment and health protection, such as the Environmental Protection Agency (EPA) health departments, and the Centers for Disease Control and Prevention (CDC).
- Consulting roles, such as within pharmaceutical and healthcare companies.
- Community-based organizations concerned with health issues related to environmental exposures.

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## **Admissions Requirements**

An admissions package must include:

- All official academic transcripts
- Three (3) letters of recommendation
- A resume/CV
- A personal statement describing fit/interest within the Department
- Relevant writing samples (i.e., published and scholarly papers)
- Official GRE scores

All PhD candidates in EHS are accepted through the Graduate School of Arts & Sciences at Columbia University:

### **[Graduate School of Arts & Sciences at CU](#)**

The deadline for fall admissions is **December 1<sup>st</sup>**; spring applications are not accepted.

For further information on admissions requirements and program contacts, please refer to the GSAS website:

### **[EHS Admissions Requirements and Program Contacts](#)**

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## **PhD Program Requirements and Procedures**

Upon admission to the program, each student will meet twice during the academic year with the Department Chair, the Director and Associate Director of Educational Affairs. These meetings will provide information and recommendations regarding course work, qualifying examinations, and will assist students in designing and executing an appropriate academic plan for the first two years.

All PhD candidates typically carry a full course load for the first two or three years in the program. Each student must complete specified courses in their first 2 years of the program listed in the next section of this handbook.

### **Master of Arts (MA) degree**

Upon the successful completion of two full time semesters of course work or 2 Resident Units (RUs) of credit (*1 RU = 1 full semester of coursework*), candidates are awarded a Master of Arts (MA) degree if they have not acquired an MA degree prior to program matriculation. This involves completing a simple application through the GSAS.

### **Application for Degree or Certification**

### **Master of Philosophy (M Phil)**

The Master of Philosophy (MPhil) degree is awarded to students following the successful completion of their qualifying examination and achievement of 6 Residence Units (RUs) or 6 semesters of coursework. Candidates register for 1 RU each academic semester. This typically occurs in the summer of the second year. For students who have a prior Master's level degree, an Advanced Standing application should be completed which will provide 2 RUs towards the total 6 necessary for the MPhil degree.

### **Application for the Degree of Master of Philosophy**

### **\*SAMPLE\* Curriculum for Doctoral Program in the Molecular Epidemiology Track:**

The EHS program in Molecular Epidemiology is distinguishable from work in the Epidemiology Department by its focus on the underlying molecular mechanisms of epidemiological findings. Thus, Molecular Epidemiology candidates require more grounding in basic biology, molecular biology and genetics compared to those within the Epidemiology department. We are proud that the field of Molecular Epidemiology originated in our department in the 1980's and is now recognized worldwide as an important area of research. EHS Molecular Epidemiology candidates therefore require a rigorous course load that covers relevant biology courses, as well as considerable course work in epidemiology and biostatistics. **Please note:** although these courses, primarily in year 1, are strongly recommended, there is flexibility based upon the individual research goals of each candidate in the program. Please refer to this as a helpful guide. More detailed discussions will occur with your advisor.

## Molecular Epidemiology Track Curriculum

Semester	Courses
Year 1 Fall	<ul style="list-style-type: none"> <li><input type="checkbox"/> G6300 - Biochemistry and Molecular Biology I (if not enough biology background, then take P6385 – Genetics and the Env't and take G6300 Year 2 Fall).</li> <li><input type="checkbox"/> P6400 - Epidemiology I</li> <li><input type="checkbox"/> P6104 - Intro to Biostatistical Methods<sup>1</sup></li> <li><input type="checkbox"/> P9370 - Journal Club</li> <li><input type="checkbox"/> Weekly Doctoral Seminar (Tuesdays from 4-5 pm)</li> <li><input type="checkbox"/> 1<sup>st</sup> rotation (begins here and can extend into the next semester).</li> </ul>
Year 1 Spring	<ul style="list-style-type: none"> <li><input type="checkbox"/> P8307 - Molecular Epidemiology</li> <li><input type="checkbox"/> P8322 – Environmental Determinants of Human Health II (EHS Core may be audited prior to taking this course depending upon background).</li> <li><input type="checkbox"/> P8438 - Epidemiology II Design &amp; Conduct of Observational Epidemiology</li> <li><input type="checkbox"/> P8100 - Applied Regression Analysis<sup>2</sup></li> <li><input type="checkbox"/> P8120 - Analysis of Categorical Data<sup>3</sup></li> <li><input type="checkbox"/> P9370 - Journal Club</li> <li><input type="checkbox"/> Weekly Doctoral Seminar (Tuesdays from 4-5 pm)</li> <li><input type="checkbox"/> 2<sup>nd</sup> rotation (begins after completion of their first rotation)</li> </ul>
Year 1 Summer	<ul style="list-style-type: none"> <li><input type="checkbox"/> P8400 - Epidemiology III Applied Epidemiologic Analysis<sup>4</sup></li> <li><input type="checkbox"/> 3<sup>rd</sup> rotation (this rotation is optional but if taken can extend into fall)</li> </ul>
Year 2 Fall	<ul style="list-style-type: none"> <li><input type="checkbox"/> P8312 - Fundamentals of Toxicology</li> <li><input type="checkbox"/> P8319 - Biological Markers of Chemical Exposure</li> <li><input type="checkbox"/> P9485 - Advanced Topics in Epidemiology</li> <li><input type="checkbox"/> P9370 - Journal Club</li> <li><input type="checkbox"/> Weekly Doctoral Seminar (Tuesdays from 4-5pm)</li> <li><input type="checkbox"/> Electives based upon individual interests/prior coursework</li> <li><input type="checkbox"/> Candidates select laboratory for thesis project</li> <li><input type="checkbox"/> Candidates begin to develop thesis project with mentor</li> </ul>
Year 2 Spring	<ul style="list-style-type: none"> <li><input type="checkbox"/> P8110 - Applied Regression II<sup>5</sup></li> <li><input type="checkbox"/> P8111 - Linear Regression Analysis<sup>6</sup></li> <li><input type="checkbox"/> P9370 - Journal Club</li> <li><input type="checkbox"/> Weekly Doctoral Seminar (Tuesdays from 4-5pm)</li> <li><input type="checkbox"/> G4010 - Responsible Conduct of Research &amp; Related Policy Issues<sup>7</sup></li> <li><input type="checkbox"/> One (1) elective</li> <li><input type="checkbox"/> Candidates continue developing thesis project with mentor</li> </ul>
Year 2 Summer	<ul style="list-style-type: none"> <li><input type="checkbox"/> Qualifying Exam – (this may extend into the beginning of Fall Year 3)</li> </ul>
Year 3 Fall	<ul style="list-style-type: none"> <li><input type="checkbox"/> P9370 - Journal Club</li> <li><input type="checkbox"/> Candidates begin full-time thesis research</li> <li><input type="checkbox"/> 1<sup>st</sup> Thesis Committee meeting</li> <li><input type="checkbox"/> Weekly Doctoral Seminar (Tuesdays from 4-5pm)</li> </ul>
Post Year 3 Fall	<ul style="list-style-type: none"> <li><input type="checkbox"/> P9370 - Journal Club continues every semester until the candidate's thesis-writing semester begins</li> <li><input type="checkbox"/> Annual Seminar presentations continue every year until the candidate's thesis defense</li> <li><input type="checkbox"/> Bi-annual Thesis Committee meeting (one can correspond with seminar but must be within two (2) weeks of seminar presentation)<sup>8</sup></li> </ul>

<sup>1</sup> This course is a prerequisite for other courses and is therefore recommended as part of the first semester curriculum. To register, candidates must first take a placement exam. Please reach out to Ms. Justine Herrera [jh2477@columbia.edu](mailto:jh2477@columbia.edu) for details.

<sup>2</sup> This course is offered in the fall and spring. P6104 is a pre-requisite for this course.

<sup>3</sup> This course is offered in the fall and summer.

<sup>4</sup> P8120 and P8438 are pre-requisites for this course. Following this course, there is the option to take Epi 4 and 5 for EHS PhD students. Please contact Dr. Freyer for more information about the sequencing and content of these courses.

<sup>5</sup> P6104 and P8100 are pre-requisites for this course.

<sup>6</sup> There are two pre-requisites for this course: P8104, Probability (offered in the fall) and P8109, Statistical Inference (offered in the spring).

<sup>7</sup> This ethics course is given by the University every spring semester. All PhD candidates must complete this course in the spring semester of their second year. If there is a conflict with other courses, it can be taken in the third year. The ethics course description can be viewed on the GSAS website: [G 4010 Course Description](#).

<sup>8</sup> Thesis Committee meetings may occur more than twice a year, which is the minimum required.

### **\*SAMPLE\* Curriculum for Doctoral Program in the Toxicology Track:**

Candidates in the Toxicology Track are expected to take relevant biology courses that will prepare them for laboratory-based thesis work. Candidates take a full year of biochemistry and molecular biology, the same courses taught to all graduate students in the College of Physicians & Surgeons. Fewer courses are required than in the Molecular Epidemiology Track, but students will spend more time developing skills and techniques in laboratory settings. **Please note:** although these courses, primarily in year 1, are strongly recommended, there is flexibility based upon the individual research goals of each candidate in the program. Please refer to this as a helpful guide. More detailed discussions will occur with your advisor.

<b>Toxicology Track Curriculum</b>	
<b>Semester</b>	<b>Courses</b>
Year 1 Fall	<ul style="list-style-type: none"> <li><input type="checkbox"/> G6300 - Biochemistry/Molecular/Cell Biology I</li> <li><input type="checkbox"/> P6104 - Intro to Biostatistics Methods<sup>1</sup></li> <li><input type="checkbox"/> P6400 - Epidemiology I</li> <li><input type="checkbox"/> P9370 - Journal Club</li> <li><input type="checkbox"/> Weekly Doctoral Seminar (Tuesdays from 4-5pm)</li> <li><input type="checkbox"/> 1<sup>st</sup> rotation (begins here and can extend into the next semester)</li> </ul>
Year 1 Spring	<ul style="list-style-type: none"> <li><input type="checkbox"/> P8322 – Environmental Determinants of Human Health II (<i>EHS Core may be audited prior to taking this course depending upon background</i>).</li> <li><input type="checkbox"/> P8438 - Epidemiology II Design and Conduct of Observational Epidemiology</li> <li><input type="checkbox"/> G6301 - Biochemistry and Molecular Biology II</li> <li><input type="checkbox"/> P8308 - Molecular Toxicology</li> <li><input type="checkbox"/> P9370 - Journal Club</li> <li><input type="checkbox"/> One to two (1-2) electives</li> <li><input type="checkbox"/> 2<sup>nd</sup> rotation (begins after completion of the first rotation)</li> </ul>
Year 2 Fall	<ul style="list-style-type: none"> <li><input type="checkbox"/> P8312 - Fundamentals of Toxicology</li> <li><input type="checkbox"/> P8313 - Toxicokinetics</li> <li><input type="checkbox"/> P9370 - Journal Club</li> <li><input type="checkbox"/> Two (2) electives</li> <li><input type="checkbox"/> Candidates select laboratory for thesis project</li> </ul>
Year 2 Spring	<ul style="list-style-type: none"> <li><input type="checkbox"/> P9370 - Journal Club</li> <li><input type="checkbox"/> G4010 - Responsible Conduct of Research and Related Policy Issues<sup>2</sup></li> <li><input type="checkbox"/> Candidates develop thesis project with mentor</li> <li><input type="checkbox"/> One to two (1-2) electives</li> </ul>

Year 2 Summer	<input type="checkbox"/> Qualifying Exam – (this may extend into the beginning of Year 3 Fall)
Year 3 Fall	<input type="checkbox"/> P9370 - Journal Club <input type="checkbox"/> Candidates begin full-time thesis research <input type="checkbox"/> 1 <sup>st</sup> Thesis Committee meeting
Post Year 3 Fall	<input type="checkbox"/> P9370 - Journal Club (see below) continues every semester until the candidate's thesis-writing semester <input type="checkbox"/> Bi-annual Thesis Committee meeting (one can correspond with seminar but must be within two (2) weeks of seminar presentation) <sup>3</sup>

<sup>1</sup> This course is also offered during the summer. A placement exam is required regardless of what semester the course is taken. Please contact Ms. Justine Herrera [jh2477@columbia.edu](mailto:jh2477@columbia.edu) for details.

<sup>2</sup> This ethics course is given by the University every spring semester. All PhD candidates must complete this course in the spring semester of their second year. If there is a conflict with other courses, it can be taken in the third year. The course description can be viewed on the GSAS website: [G 4010 Course Description](#).

<sup>3</sup> Thesis Committee meetings can occur more than twice a year, which is the minimum required.

**\*SAMPLE\* Curriculum for Doctoral Program in the Climate and Health Track:**

The climate and health track equips graduates with the knowledge and skills needed to advance society's capacity to understand, anticipate, and prevent adverse health consequences of climate variability and change. Climate-related health impacts can arise via complex interactions among environmental exposures and vulnerabilities, involving such factors as heat waves, air pollution, airborne allergens, ecological services, poverty, conflict, access to health services, water- or vector-borne diseases, water and food availability, migration and unplanned population displacement, and diverse impacts of extreme storm events, including effects on mental health. Coursework is tailored to the individual needs of students, based on his/her background and interests. Below is a sample curriculum. This may vary depending upon the individual needs of each doctoral student in the track.

Climate and Health Track Curriculum	
Semester	Courses
Year 1 Fall	<input type="checkbox"/> G6300 - Biochemistry and Molecular Biology I (if not enough biology background, then take P6385 – Molecular Genetics and the Env't and take G6300 Year 2 Fall). <input type="checkbox"/> P6104 - Intro to Biostatistical Methods <input type="checkbox"/> P6400 - Epidemiology I <input type="checkbox"/> P9370 - Journal Club <input type="checkbox"/> Weekly Doctoral Seminar (Tuesdays from 4-5pm) <input type="checkbox"/> 1 <sup>st</sup> rotation (begins here and can extend into the next semester)
Year 1 Spring	<input type="checkbox"/> P8304 - Health Impacts of Climate Change <input type="checkbox"/> P8100 - Applied Regression Analysis I <input type="checkbox"/> P8438 - Epidemiology II Design and Conduct of Observational Epidemiology <input type="checkbox"/> P9370 - Journal Club <input type="checkbox"/> 2 <sup>nd</sup> rotation (begins after completion of the first rotation)
Year 1 Summer	<input type="checkbox"/> P8400 - Epidemiology III Applied Epidemiologic Analysis <sup>4</sup> <input type="checkbox"/> 3 <sup>rd</sup> rotation (this rotation is optional but if taken can extend into fall)
Year 2 Fall	<input type="checkbox"/> P8301 - Atmospheric & Climate Science for Public Health <input type="checkbox"/> P8312 - Fundamentals of Toxicology <input type="checkbox"/> P9370 - Journal Club <input type="checkbox"/> Elective(s) <input type="checkbox"/> Candidates select laboratory for thesis project

Year 2 Spring	<input type="checkbox"/> P8110 - Applied Regression Analysis II <input type="checkbox"/> P9370 - Journal Club <input type="checkbox"/> G4010 - Responsible Conduct of Research and Related Policy Issues <input type="checkbox"/> Elective(s) <input type="checkbox"/> Candidates develop thesis project with mentor
Year 2 Summer	<input type="checkbox"/> Qualifying Exam – (this may extend into the beginning of Year 3 Fall)
Year 3 Fall	<input type="checkbox"/> P9370 - Journal Club <input type="checkbox"/> Candidates begin full-time thesis research <input type="checkbox"/> 1 <sup>st</sup> Thesis Committee meeting
Post Year 3 Fall	<input type="checkbox"/> P9370 - Journal Club every semester until candidate's thesis writing semester <input type="checkbox"/> Bi-annual Thesis Committee meeting (one can correspond with seminar but must be within two (2) weeks of seminar presentation)

**Sample of Elective Recommendations for the Climate and Health Track:**

- G4020 Graduate Immunology
- P8651 Water and sanitation in complex emergencies
- W4330 Multilevel Models
- W4437 Time Series Analysis
- P8432 Environmental Epidemiology

**Journal Club in Environmental Health Sciences** (P9370 for 1 credit)

All PhD candidates **must attend Journal Club every semester**, with the exception of the final semester(s), when they are committed to composing their theses.

Doctoral candidates will be required to read primary research papers and present a critical review on the material. The goal of this course is to teach candidates to present and debate informative, challenging and current topics from scientific literature. Each semester, the course topic, chosen by the course instructor, relates to a specific area of study in environmental sciences. Some sample topics include: the effects of ozone depletion on cells; asthma in the urban environment; recent advances in the use of biomarkers in predicting cancer; health effects of heavy metals in the environment; population epigenetics; water-borne pathogens and disease.

**Academic Honesty & Honor Code:** All candidates are expected to adhere to the required standards for academic and scientific integrity, which can be found in the GSAS statement on Academic Honesty:

[Academic Integrity and Responsible Conduct of Research](#)

**Information on Grant-Writing Course (Highly Recommended):**

Grant-writing courses are detailed via the website link below.

[Grant Courses](#)

## Elective Options

Candidates are encouraged to enhance their educational experience by taking elective courses of interest that relate to their thesis topic. There are numerous elective course options available both at the Medical Center campus and the main Columbia University campus (see “Cross-Registration Policies”). Below is a brief sample of courses taken by past EHS doctoral candidates across all tracks. Please refer to the Director of Educational Affairs, the Associate Director of Educational Affairs, and other PhD students in the program for additional possibilities:

- P8157 Analysis of Longitudinal Data<sup>1</sup>
- P8371 Public Health GIS
- W4799 Molecular Biology of Cancer
- G9600 Molecular Pharmacology
- W4004 Neurobiology: Cellular and Nuclear
- G4150 Cellular Molecular Biophysics
- P8432 Environmental Epidemiology<sup>2</sup>
- G6101 Statistical Modeling/Data Analysis
- P8311 Basic and Applied Nutritional Science
- BIOL 4004 Neurobiology: Cellular and Molecular
- BIOL 4260 Proteomics Laboratory
- M9780 Grant Writing Course

## Registration and Residence Unit Requirements

### 2013-2014 ACADEMIC CALENDAR:

#### [Academic Calendar](#)

#### Registration Policy

As per the guidelines provided by the Graduate School of Arts and Sciences, all EHS PhD candidates must be continuously registered until all degree requirements are completed. Registration fees vary depending on the candidate’s stage of training and other administrative details. Tuition is calculated on a flat-fee, not per credit, basis.

Registration for a Residence Unit (RU) entitles candidates to take an unlimited number of courses during a semester. Candidates registered for a full RU are considered full-time, and first- and second-year candidates must register for a full RU each semester. Candidates must complete six full RUs to be eligible for a PhD degree\*\* and those who enter the program with a Master’s degree must apply for advanced standing in the form of two (2) RUs (see below). While the RU is not itself a course, it is assigned a course ID number for registration purposes. **RUs may only be earned during fall and spring semesters, not during the summer.** If candidates are interested in taking summer courses, they should contact the Associate Director of Educational Affairs for more information.

After completing all required courses and RUs, GSAS students must still fulfill remaining degree requirements, which include the qualifying examination (QE) and the dissertation. Once a candidate has fulfilled the RU requirements, he/she must still maintain continuous registration in

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<sup>1</sup> Please note this course has P8109 Statistical Inference and P8111 Linear Regression Models as prerequisites.

<sup>2</sup> Recommended to take after Epidemiology II. Also recommended for those in Climate & Health.

one of two ways: Extended Residency (ER) or Matriculation and Facilities (M&F), based on the following guidelines:

1. Candidates who hold a University teaching or research appointment must register for ER, or
2. Candidates who are still taking the qualifying examination must register for ER, or
3. Candidates who are writing/defending a dissertation may register for M&F if they (a) are not taking a course, or (b) are NOT appointed as a teaching or research fellow, or (c) have completed all degree requirements other than the dissertation.

Candidates registered for ER may take a limited number of courses, as needed. M&F entitles candidates to use University facilities, but not to take courses. Please visit the GSAS registration pages for additional information: [Residence Unit and Other Registration Categories](#).

**\*\*Advanced Standing:** Candidates who have an advanced degree (Master's level or higher) in a related field should apply for advanced standing after successfully completing one semester of course work. The GSAS grants two RUs (2 semesters) of advanced standing for an advanced degree. Candidates who enter the program without an MA degree must apply for the degree through the GSAS after completing 30 points of course work and 2 RUs. The Advanced Standing application is available through the GSAS: [Advanced Standing](#).

**Registration Procedures:** To view the latest and most up to date course registration information, please visit the Mailman School course listings: [Course Listings](#).

**Change-of-Program:** The first two weeks of each semester are designated as the "Change-of-Program" period. Please refer to the Mailman School of Public Health Academic Calendar for the exact dates: [Academic Calendar](#). During this time, candidates are permitted to add any new class to their program without penalty. A late registration fee is charged for any class added after the change-of-program-period has passed.

**Cross-Registration Policies:** Candidates interested in cross-registration at another Columbia University school need two types of permission. First, they must obtain their advisor's signature to verify approval to apply the course to their degree program. Second, they must obtain permission from the School/Department that offers the course in order to secure a seat. It is important to note that the process of obtaining permission to enroll in a course as a cross-registrant is overseen by the other School/Department (not the Mailman School). Often, but not always, the other school provides a hard copy form that tracks this permission. Permission might rest with the course instructor, the Student Affairs Office of that School/Department, or both. **It is important for the candidate to contact the school about its process and how to obtain permission to enroll in a course.**

After obtaining permission, candidates must bring this information, along with a registration form to the CUMC Registrar during the change-of-program period. The form is available online at: [Cross Registration Application](#). However, since candidates cannot add or drop non-public health courses online, registration must be done in person at the Office of the Registrar.

**Adding/Dropping Courses:** After the add/drop period, which is typically about two weeks, candidates will need approval from both their advisor and the Office of Student Affairs to drop courses. Approved forms must be brought to Room 1-141 Black Building to be processed:

#### [Registration and Add/Drop Form](#)

Program changes must be made in person. No adjustment of tuition will be made for any course dropped after the last day of the change-of-program period. There is also a date in the Academic Calendar after which courses may not be dropped.

*Failure to attend classes or unofficial notification to the instructor does not constitute dropping a course and will result in a grade of UW (unofficial withdrawal). Courses can be dropped only through the change-of-program procedure described above.*

**School Policy on INCOMPLETE GRADES:** Candidates who have a grade of incomplete (IN) have one year from the end of the semester of registration to complete the work: [Grading System](#).

**Additionally, candidates must complete an “incomplete” form that is filed with the Office of Student Affairs to confirm their status for the course:**

### [Official Request for Incomplete Form](#)

Unless there is notification of a change of their grade from an incomplete to a letter grade, the incomplete will automatically be converted to unofficial withdrawal (UW), defined as "student did not complete attendance and/or assignment, but failed to withdraw." Under very special circumstances, an instructor may grant an extension, usually for a specified period of time that is not more than six months. A grade of "UW" will not be changed to a passing grade. In most cases, a candidate will have to register again for the course to complete the requirement. UW results in no grade, loss of credit and no refund.

**Leaves of Absence & Readmission:** Due to the continuous registration requirement, it is important for candidates to request leaves of absence in writing for any time that they will be away from the University for an extended period of time. This may be for reasons of ill health, maternity/paternity leave, military service or other reasons deemed to be acceptable by the University. It is important to note that, if candidates do not officially request a leave of absence and do not register for a semester, not only must they apply for readmission to the University before registration is allowed, but they will also be billed for the semester that was missed (at the current rate) before they are readmitted. This means that if candidates fail to register in 2012 without applying for an official leave of absence, and they apply for a degree in 2013, the University will charge them for that 2012 semester at 2013 rates before they will readmit them. This payment is called a “variable reinstatement fee” and is not considered to be a tuition payment by the University. To request a leave of absence, candidates should first write a letter of intent to the Chair of the Department for approval, and send a copy to the Associate Director of Educational Affairs. For further details and information regarding leaves of absence and readmission, consult the [GSAS Bulletin: Leave of Absence Request Form](#).

### **PhD: Other Requirements**

**Program Time Limits:** Candidates in the PhD program are allowed a total of **seven (7) years** to complete the PhD, including the MA. If Advanced Standing for an MA at a previous institution has been granted, the time limit becomes six (6) years. Regardless, coursework is expected to be completed within two (2) years and the department will provide all the necessary support toward a **five year goal** of completion.

If a candidate finds that he/she cannot complete the degree within the allotted time period, a request for an extension of no more than one year at a time must be made in writing with the advisor and then submitted to the Chair of the Department and the Office of Student Affairs. The candidate can expect to hear directly from the Graduate School regarding assignments of a new time limit. Required submission of the annual academic progress review described earlier serves the function of requesting an extension of the seven (7)-year time limit, including obtaining permission from the GSAS. For more information, see the GSAS rules on Satisfactory Academic Progress: [Satisfactory Academic Progress](#).

## Bi-Annual Progress Report

**All EHS PhD candidates are required to submit a progress report at the start of the academic year and then again at the start of the spring semester (see Appendix A).** Each candidate must meet with either their advisor, or with the Director of Academic Affairs (Dr. Greg Freyer) and the Associate Director (Nina Kulacki) if they do not yet have an assigned advisor. Candidates should expect to hear from their primary and/or secondary advisors in August to set up a review meeting. Completed reports are to be submitted to the Director of Academic Affairs and a copy will be kept on file with the Associate Director of Academic Affairs.

In addition to the bi-annual review, candidates are expected to obtain a grade of **B or higher** in every course for which they are registered. If a candidate receives a grade below a B, this will be brought to the attention of the EHS Doctoral Committee and a review will take place to determine the circumstances behind the grade. If a student receives a second grade below a B they will be required to meet with the PhD Committee, and, if deemed appropriate, could be asked to leave the program.

## Research and Lab Rotations

**The purpose of laboratory rotations is for students to identify a laboratory where they wish to accomplish their thesis work. To this end, a candidate may take up to three (3) laboratory rotations.** For students entering the program who have already identified a mentor, fewer rotations may be necessary. Rotations should be discussed with the Director of the PhD program. All rotations are to be carried out with a faculty member who has a primary or joint appointment in the Department of Environmental Health Sciences. For candidates funded on the Training Grant, an outside faculty member on the Training Grant faculty is an acceptable alternative. If deemed beneficial to the student's training, one rotation outside of the Department will be permitted with the approval of the Director of the PhD program.

Each rotation lasts approximately one semester, consisting of 12 weeks of work for at least 15 hours per week.<sup>3</sup> During this time, the candidate is expected to carry out a research project in collaboration with the faculty member. The purpose of the project is to familiarize the student with the research interests of that particular investigator.

Candidates should begin rotations **in their first semester. The three (3) rotations should be completed no later than the end of the second fall semester.** Upon completion of the last rotation, the candidate will have identified an advisor, at which time a thesis project should begin to be formulated. The thesis project will become part of the Qualifying Examination (QE). **The Qualifying Examination must be completed no later than the 5<sup>th</sup> semester in the program (mid-Fall of year two (2)).**

At the conclusion of the rotation, each candidate will be required to present on their lab rotation experience to the department. Typically, presentations will be approximately 15 to 20 minutes and should address: what was accomplished, anticipated goals versus met goals, future directions. The presentation should also include how the experience fits within what candidates are learning in their courses and within the field of EHS in general. Lab Rotation Presentations will occur at the end of each academic semester and will be organized by the Associate Director. All EHS faculty and doctoral students will be invited to attend.

Please see the GSAS website for a list of potential faculty, who must be members of the Graduate Faculty, to serve as mentors: [Environmental Health Sciences Faculty Directory](#).

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<sup>3</sup> This time span can be shortened if a candidate prefers to work more than 15 hours per week, however, once the number of hours has reached 180, the candidate has officially completed their lab rotation commitment time period.

***Doctoral Working Space/Lab Space:*** All incoming PhD students will be assured a work space in their first year. However, once a mentor and a lab have been identified, PhD students must utilize lab space as their office in order to provide seating on the 11th floor for others.

### **Teaching Fellow Opportunity**

Teaching is considered a critical component of doctoral training, therefore, all candidates must engage in multiple teaching opportunities during their graduate training. There are two parts to the teaching responsibilities of doctoral candidates. First, each PhD candidate must be a Teaching Fellow in one departmental course for each year in the program, with the exception of their first year and their final year. The final year is defined by having an anticipated defense date within the upcoming academic calendar year verified by the candidate's sponsor. Second, beginning in their third year, candidates are expected to give at least one lecture in a departmental graduate level course. Typically, this is done in collaboration with their PhD mentor, but can alternatively take place in any course offered by the EHS department, as appropriate. It may also take place in conjunction with fulfilling the role of Teaching Fellow for a particular course.

Teaching Fellow positions will be assigned to PhD candidates by the Director of Educational Affairs. Consideration will be made to match candidates' interests and prior experience to the courses offered during that academic period. The Department will make every attempt to match doctoral candidates with their choice of a Teaching Fellow slot, but a first choice is not guaranteed.

For those candidates who would like more instruction on teaching methods, there are several support systems at the Mailman School and the University that are designed to help prepare for teaching. For support with teaching related efforts, candidates may contact the Graduate School of Arts & Sciences (GSAS) Teaching Center, located at 301 Philosophy. The GSAS Teaching Center is the source for practical advice about most aspects of teaching, including: course design, assessment, preparing a teaching philosophy, assembling a teaching portfolio, course management and the innovative use of teaching. The Center can also be contacted by calling 212-854-1066. An additional resource is the Director of Educational Initiatives, Ms. Leah Hooper, [lch2124@columbia.edu](mailto:lch2124@columbia.edu), who can provide assistance and support with an array of teaching preparation techniques and skills.

Currently, the Department of EHS has partnered with the Office of Educational Affairs on providing structured workshops on how to best support faculty in the classroom. The details and schedule of these workshops will be shared the summer of 2012 with anticipated dates in August.

## Qualifying Examinations

### Written Proposal

Qualifying Examinations are to be completed and defended no later than the **fall semester (by the end of December) in the third year**. The qualifying exams are composed of two written proposals: 1) the thesis proposal of the candidate, which is conceived in consultation with the candidate's mentor, although the work is meant to be produced independently by the candidate and 2) a second proposal on a topic of interest to the candidate, separate and with no overlap with the thesis proposal, concerning some aspect of environmental health science. The uniqueness of the second proposal should be decided upon by the candidate's mentor and with the Chair of the Qualifying Exam Committee.

The steps leading up to the Qualifying Exam include:

- A one page abstract of both proposals must be reviewed and approved by the Chair of QE committee, Dr. Greg Freyer
- After approval, the exams will be due to the full committee 2 months later (this may adjust slightly on a case by case basis)
- The exam date should be scheduled 3 weeks after the proposals have been submitted (to allow QE Committee members time for review), or a time as close to this as possible, accounting for the schedules of the QE Committee members.

As the qualifying exam will be testing the knowledge base of candidates within the overall field of EHS and Public Health and more specifically on their thesis topic area and coursework, candidates should anticipate a wide range of relevant questions from the committee members.

### Format of the Proposal

The proposals should follow the current NIH guidelines for an R01 application. Guidelines can be found online at NIH.gov or through their advisor.

### Abstract

The Abstract should be 30 lines of text or less, describing the purpose, significance and approach of the proposal and is **not** included in the page count.

### Specific Aims

The candidate must list their broad, long-term objectives, as well as what the specific research proposed in this application is intended to accomplish (e.g., to test a stated hypothesis, create a novel design, solve a specific problem, develop new technology, etc.). This section should give a brief statement of purpose, a hypothesis to be tested and be followed by a series of 2-4 major aims that the candidate proposes to carry out in order to sufficiently test his/her hypothesis.

**This section should not exceed 1 page. This does not count towards the page count.**

### Research Strategy—REVISED SECTION:

The page limit cannot exceed **12 pages** (for R01s; page limits for other grant types will vary. Please see the NIH Table of page limits for other grant mechanisms: [NIH Table of Page Limits](#). This section includes the following new headings: **Significance, Innovation, and Approach.**

### **1. Significance:**

This section should explain the importance of the problem or critical barrier to progress in the field that the proposed project addresses. The section explains how the proposed project will improve scientific knowledge, technical capability, and/or clinical practice in one or more broad fields. Also, describe how the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field will be changed if the proposed aims are achieved.

### **2. Innovation:**

This section should explain how the application challenges and seeks to shift current research or clinical practice paradigms. Next, describe any novel theoretical concepts, approaches or methodologies, instrumentation or intervention(s) to be developed or used, and any advantage over existing methodologies, instrumentation or intervention(s). Finally, explain any refinements, improvements, or new applications of theoretical concepts, approaches or methodologies, instrumentation or interventions.

### **3. Approach:**

If you are including Preliminary Studies, put this information in the "Approach" Section. Then describe the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the project. Include how the data will be collected, analyzed, and interpreted as well as any resource sharing plans as appropriate. Also, discuss potential problems, alternative strategies, and benchmarks for success anticipated to achieve the aims.

One outline candidates may consider for writing this section is listed below

- Restate the specific aim
- Briefly explain the purpose of proposed studies
- Give experimental details and/or detailed study analysis
- Describe expected outcomes/anticipated results
- Disclose possible pitfalls
- Give alternative approaches

### **Literature Cited**

The candidate must include full references with all authors and titles. **This section is not included in the page count.**

***Examples of previous examinations/theses are available via the Associate Director of Academic Affairs, Nina Kulacki, [nj2128@columbia.edu](mailto:njk2128@columbia.edu).***

### **Oral Defense of Proposal/Qualifying Exam Committee**

It is the responsibility of the candidates to contact and collaborate with the Associate Director of Academic Affairs, Nina Kulacki, in setting the date of their oral Qualifying Examination. Once the time/date is confirmed, Ms. Kulacki will finalize the information and set a location, which must be done in conjunction with the candidate's advisor and the members of the Examination Committee. The Committee is currently a standing committee of three (3) faculty members (Drs. Joseph Graziano, Matt Perzanowski and Greg Freyer), in addition to the candidate's thesis advisor. Also, this standing committee will rotate every few years as appropriate. The completed proposal must be submitted to the Examination Committee members **at least two (2) weeks before the defense. Although the Qualifying Examination is expected to last two (2) hours, the candidate should be prepared to allot three (3) hours for the exam.**

At the Examination, the candidate will give a formal presentation of each proposal, which will be

followed by a question-and-answer period during which time the candidate defends the validity of his/her proposal and answers questions related to the proposed area. Candidates should be prepared to answer questions related to Environmental Health Sciences and their course work, where it pertains to the subject. The oral presentation should last approximately 30 minutes for each proposal, with 30-45 minutes of question time to follow.

All qualifying exam committees will also include at least one external faculty members per the recommendation of the candidate's advisor. External is defined as outside of this department. Ideally, the external member will have an expertise in the topic area of the exams. This is to ensure both diversity of committee members and a broader area of expertise represented within the field of EHS. Additionally, all members of the committee will receive a transcript of courses taken while in the PhD program prior to the Qualifying Exam.

After the defense, the Committee will vote to: 1) pass the candidate to move forward onto thesis work, 2) ask for minor revisions to the proposals which will be addressed with the thesis advisor, or 3) not ready to move forward on thesis work, whereupon the candidate is required to undergo another exam within two months. Typically, **upon successful completion of the Qualifying Examination, the candidate will be awarded a Master of Philosophy (see below).**

**Post-Qualifying Exam (MPhil):** After successful completion of the Qualifying Exam, the candidate applies for the Master of Philosophy degree (MPhil) through the GSAS. In order to receive this degree, the candidate must have completed a total of six (6) RUs in addition to passing the two proposals. For candidates entering the program without a Master's degree, another year of full-time status to accumulate the 6 RUs is required. The GSAS allows no more than four (4) years to achieve the MPhil degree, otherwise the candidate is considered to be in poor academic standing.

***Registration: Once candidates have completed their 6 RUs (whether before or after their Qualifying Exam), they must register for Extended Residency (ER).***

**[Application for the Degree of Master of Philosophy](#)**

## **Dissertation Preparation and Process**

### **PhD Dissertation/Thesis**

After completing the qualifying exam (QE), the candidate's focus is to carry out their thesis project. One of the first steps is to choose a Thesis Committee in consultation with their advisor. **Candidates should meet with their Thesis Committee within two (2) months of completing the QE.** While working on the thesis topic, candidates should be guided by both their primary advisor and the Thesis Committee. Candidates must meet twice a year, at minimum, with all Thesis Committee members, although more frequent meetings are often appropriate.

Thesis projects should be hypothesis-driven and must comprise original research. Therefore candidates are obligated to perform studies that test their hypothesis, collect data and complete appropriate analysis of said data. The best measure of the candidate's work is whether the research is deemed worthy of publication in peer-reviewed journals. **While publishing is not required, the candidate's goal should be to have at least one publication as the primary author.** In the results section of the dissertation, ideally, each chapter is a publication relative to the thesis for which the candidate is a first author. These can be papers that are already published, in press or submitted (see The Written Thesis Section of this handbook for more information).

### **Thesis and Dissertation (Defense) Committees**

By definition, these are two separate committees; however, in reality, they can be, and often are identical for purposes of facilitating the dissertation process. Thus, it is worthwhile to consider the guidelines for the composition of the Dissertation Committee when choosing the members of the Thesis Committee.

The Thesis Committee serves as a resource to the candidate during his or her thesis work. It meets regularly (no less than twice a year) to review the candidate's progress and make recommendations. With the assistance of the Associate Director, **candidates must initiate the scheduling of these meetings.** The candidate must also complete a Thesis Committee Form (Appendix B) for each meeting, which requires approval from all Committee members and must be submitted to the Associate Director at the completion of the meeting. The Dissertation Defense Committee design is based on the requirements of the GSAS (see *Dissertation Committee Formation* below). This committee's role is to oversee the actual defense of the thesis and then to vote on its acceptability as worthy of a PhD degree.

### **Thesis Committee**

The Thesis Committee requires a minimum of three (3) members: the candidate's advisor and two additional members, one of whom should be from within the department. Most Thesis Committees are comprised of five (5) members, with three members internal to the department and two external. Many students prefer to have the same members for their thesis and dissertation/defense committees, however this is not required. The Thesis Committee is assembled in consultation with the student's mentor; and it is the responsibility of the mentor to contact the Committee members. Once a Committee is formed, it should assemble within two (2) months of the completion of Qualifying Examinations. As stated above, the Thesis Committee should convene every six (6) months and these meetings will be part of the

candidate's annual review. The candidate is also required to present a seminar to the department once a year; it is recommended, whenever possible, that this coincide with one of the two required Thesis Committee meetings.

At the Committee meeting, one person from within the department will be responsible for completing a form that: 1) acknowledges the meeting, 2) lists Committee recommendations and 3) is signed by both the candidate and the Committee members. These forms are to be kept on file by the Assistant Director of Academic Affairs. Once the doctoral candidate believes he/she is adequately prepared to write his/her thesis, in consultation with their mentor and the Thesis Committee, a final Thesis Committee meeting should be held. At this meeting, the Committee will determine whether the candidate has done a sufficient level of work to recommend that he/she proceeds with the composition of the thesis. At this time, the candidate and advisor need to identify a final Defense Committee, including the Thesis Reader (see below).

### **Dissertation Committee Formation**

To commence the Dissertation, the Director of Educational Affairs, with the advice of the doctoral candidate and his/her advisor, will recommend appointment of a **five person Dissertation Committee**. The department policy is that each committee must include three (3) faculty members from within the department and two (2) additional members from outside the department. One senior faculty member, who is not the candidate's dissertation sponsor, is designated impartial chair of the ad hoc Dissertation Committee. One committee member (internal or external) must be the dissertation reader and must review and approve the thesis before it can be distributed to the rest of the Committee members *and* before a defense date can be set.

Additional information can be found in the [GSAS Dissertation Handbook](#) (the department policy may differ from the GSAS requirement, so please refer first to the information above):

[Nomination and Appointment of the Defense Committee](#)

### **Dissertation Formatting**

Information on formatting for candidates' dissertations can be found in the "Guidelines" section of the GSAS Dissertation handbook:

[Formatting Guidelines](#)

Copies of accepted EHS dissertations are available in the shelves of the EHS 11<sup>th</sup> Floor Classroom for viewing by request to the Associate Director of Educational Affairs.

### **Dissertation Proposal and Defense**

#### **Preparing Paperwork for the Dissertation Defense**

When the **sponsor** and **second reader** agree that the candidate is ready to defend his/her dissertation, the **Intent to Distribute and Defend** (available online or in 107 Low Library) must be submitted to the department/Dean's Office:

[Intent to Distribute and Defend Form](#)

It is important to note that **this paperwork must be filed before the dissertation has been distributed to all Committee members** (which takes place at least four (4) weeks prior to the defense date). Following this:

- The candidate must complete the form, sign it, and submit the form to the Dissertation Office in 107 Low Library. Or, scan and email the form with the signature.
- A copy is given to the Associate Director for review.

- At that point, the **Application for the Dissertation Defense** is completed by the Associate Director (not the student). The Committee, as listed on this form, is then approved by the Chair of the Doctoral Committee or Department Chair. [Distribution, Defense and Deposit in Ten Steps](#)
- The department then sends this form to the Dissertation Office in 107 Low Library.
- The Dissertation Officer confirms that the candidate has accumulated the required number of Residence Units (6 total), possesses an MPhil, is correctly registered as a defending candidate and has a dissertation committee that meets the GSAS guidelines on committee composition.
- After confirming the above, the Officer signs the form for submission to the Dean's Office.

### **Distributing Dissertation Copies to Committee Members**

Dissertation sponsors typically read and provide feedback on multiple drafts of dissertation chapters/papers. When the thesis is deemed complete it is sent to the Thesis Reader, who will make final major and minor edits, as appropriate.

### **Scheduling the Defense**

Once all chapters and supporting documents have been completed and *both the sponsor and second reader* agree that the dissertation is ready to defend, the candidate distributes the thesis to all Committee members. Committee members should be allowed a **minimum of four (4) weeks** to read the manuscript. **The Associate Director of Educational Affairs should be notified when the dissertation is in its final states so that a time, date and place for defense may be arranged.** The candidate is also responsible for identifying a day and time that are feasible for their sponsor, while the Associate Director coordinates that information with the rest of the committee, secures a room and advertises the seminar. Since faculty maintain busy schedules, confirming a day/time can sometimes take a few weeks. Candidates should anticipate such considerations when determining a realistic defense date/time-frame and **contact the Committee as early as possible for scheduling.**

### **The Defense**

The Defense is comprised of two parts: 1) a public, one-hour session that is typically in seminar format and advertised to all department members and, 2) a closed-door session immediately following the public presentation, with the candidate's Dissertation Committee and sponsor present.

In the closed-door defense portion, which generally lasts about two hours, the Committee poses questions to the candidate regarding his/her thesis and related areas of study. The chair of the Committee often presides over the defense, which begins with a short discussion (in the absence of the candidate) to determine its general focus. Upon admittance to the room, the candidate then gives a brief presentation of his/her dissertation research and major findings.

Following the presentation, Committee members inquire about the research and its implications. After questioning is completed, the candidate is asked to leave the room while the Committee members discuss whether the dissertation is adequate, what revisions are required and whether the dissertation merits an award of distinction. It is the responsibility of the sponsor to communicate with the candidate about required revisions. Depending on the level of revision needed, the sponsor and/or additional members of the Committee will review the revised portions and determine whether the revisions are acceptable.

The Committee may vote as follows:

Pass with minor revisions: The candidate must complete minor revisions and deposit two (2) final copies of the dissertation in the Dissertation Office no later than six (6) months from the date of the defense. Provided that the sponsor approves the revisions, the candidate is permitted to receive his/her degree.

Incomplete - major revisions: The candidate may submit acceptable revisions no earlier than three (3) months, but no later than one year, from the date of the defense. Typically, this means a major rewrite of the presented dissertation and possibly the need for additional study. If deemed appropriate, the Committee can request a subsequent meeting with the candidate once the required changes are made. The Committee chair informs the candidate that failure to make the necessary revisions within this time-frame will result in a rejection of the dissertation, leaving the candidate the sole option of obtaining the PhD Extra Muros.

Fail: This vote indicates that the dissertation cannot be made acceptable, even with major revisions and that the candidate is not recommended for the PhD degree. Here again, the candidate may petition within ten (10) years of the award of the MPhil degree to the Dean of the GSAS, with a body of published, independent, original and scholarly material. If deemed acceptable, the candidate will be permitted to schedule another examination.

A candidate may also receive distinction with a pass: For more information on how candidates are nominated please review the GSAS Dissertation Office website: [Dissertation Office](#)

### **Depositing the Dissertation**

Once the candidate has successfully defended the dissertation (i.e., has passed with minor revisions and/or distinction), the only remaining academic requirement is the final dissertation deposit. The dissertation deposit, *not* the defense, is the final requirement for the PhD degree, and the regulations governing the dissertation deposit are uniform in order to facilitate cataloging and to ensure that the work is accessible to other scholars—an integral part of the requirements for the doctoral degree.

Note: it is the candidate's responsibility to ensure that all aspects of the dissertation (i.e., text, tables, etc.) comply with the required GSAS format; otherwise, the Dissertation Office will ask that the candidate amend the dissertation before accepting the final deposit. For detailed instructions, please refer to the "Dissertation Rules: Defense, Format and Deposit" section of the Dissertation Office Handbook: [Formatting Guidelines](#).

Candidates are expected to consult with the Dissertation Office about any special problems encountered while preparing the final manuscript. The deposit-related material received at the defense includes a listing of the materials that are to be brought to the final deposit at the Dissertation Office in 107 Low Library. The dissertation must be deposited no later than six (6) months after their defense.

Degrees are awarded in October, February and May of each academic year. Candidates are eligible to receive their degree on the next conferral date following a completed dissertation deposit. Commencement for the three conferral dates is held once each year, in May, with no conferral ceremonies held in either October or February. Once the candidate has deposited his/her dissertation, he/she is considered to be a PhD recipient.

## **Important Additional Information about the Dissertation Process**

Although candidates usually follow the sequence of steps listed in the preceding pages, some deviations exist. Many of the policies about establishing a Dissertation Committee, defending a proposal, formatting one's dissertation and defending the final manuscript are set by the GSAS and are described in the Dissertation Office Handbook: [Dissertation Policies and Procedures](#). You can also find more information by selecting the dissertation drop down from the students page: <http://gsas.columbia.edu/content/dissertation-proposals>

Candidates should also see related links on this site, for it is essential that both the candidate and sponsor read and follow the GSAS guidelines.

If a candidate has questions or concerns, he/she should request clarification from the Academic Associate Director or his/her advisor in order to address any issues before they impede upon current or future academic achievement.

### ***Dissertation Resources from the GSAS Dissertation Office***

The following resources offer important information related to the dissertation. We suggest candidates bookmark them for easy reference.

*Dissertation Rules:*

[Distribution, Defense and Deposit in Ten Steps](#)

*Dissertation Formatting Guidelines:*

[Formatting Guidelines](#)

*Dissertation Deposit Requirements:*

[Electronic Deposit Gateway](#)

*Dissertation Office Forms:*

[Dissertation Office Forms](#)

*GSAS Calendars:*

[Dates and Deadlines](#)

*Dissertation Binding Options:*

Harwitt Bindery  
Walter N. Schnerb  
121 Bennett Ave., Corner of 187th St., Basement 101  
New York, NY 10033  
212-923-4112

Rustie's Bookbinding  
Rustem ("Rustie") Gungor  
323 E 75th St. bet 1st-2nd Ave  
New York, NY 10021  
212-717-7213  
Email: [rbookbinding@aol.com](mailto:rbookbinding@aol.com)  
[www.rustiesbookbinding.net](http://www.rustiesbookbinding.net)

## The Written Thesis

Several formats are acceptable for a written thesis. There are some standards, however, that are expected, and the format below is a typical representation of the final dissertation. Those elements that are required by the department are indicated with an (R). There is no specific page requirement, but a typical PhD thesis is usually 150-200 pages in length, including tables, figures and references.

One option is to follow the required guidelines, including an extensive Literature Review and then use publications (including submitted and accepted) as the middle chapters followed by a Conclusions and Future Directions Section.

### **(R) Title Page**

This contains the thesis title, candidate's name and a statement submitted in partial fulfillment of the Doctoral of Philosophy degree.

### **(R) Abstract**

This is usually a one- to three-page summary of the candidate's thesis work, where the question/hypothesis of the thesis is specified along with a brief outline of their data, results and conclusions.

### **(R) Table of Contents**

This should state each chapter's title and delineate the subtopics in each. Figures should be listed here as well, preferably in a separate table.

### **(R) Acknowledgements**

This is a brief statement (<1 page) where the candidate often acknowledges the contributions of his/her mentor, committee members, colleagues, other advisors, peers and family members who assisted in the candidate's ability to successfully conduct his/her research.

### **(R) Introduction/Literature Review\***

This section is an exhaustive review of relevant literature that should build toward the formulation of a hypothesis. It usually begins with a broader perspective of the field of study and subsequently narrows its focus on those topics most relevant to the candidate's thesis work.

### **Methods\***

A comprehensive Methods section is essential to a well-presented and cohesive thesis, particularly since the thesis is often used as a template for instruction by the project's successors. Methods can be included in individual chapters and need not be presented in a separate chapter, especially if the thesis has multiple chapters on different aspects of the research.

### **Results\***

This section should contain multiple chapters. **Ideally, each chapter is a publication relative to the thesis for which the candidate is a first author. These can be papers that are already published, in press or submitted.** If the candidate was a secondary author, then there will need to be a separate write up that only includes the parts of the paper that represent the candidate's work. Unpublished work should also be included in the thesis as separate chapter(s), one for each topic. Even if papers make up the thesis, it must still contain separate chapters for an extensive literature review, overall conclusions and future directions.

### **Discussion\***

In this section, the interpretation of the candidate's results is considered, along with an explanation of how these results can be incorporated into an increased understanding of the field.

**(R) Conclusions/Future Directions**

In this section, the candidate summarizes his/her findings and draws final conclusions. Future directions and related studies are also proposed.

**(R) References**

Full references with titles are specified in this section.

*\*This format can be used for each chapter if papers are published.*

## **Stipends and Funding**

All PhD candidates receive full tuition, health insurance coverage and a stipend, determined by Columbia University. In exchange for this support, all candidates are required to maintain a full academic schedule that includes course work, research and other academic related responsibilities. Typically, PhD students meet with the Department Administrator (DA) Ms. Lee Marsi (1pm4@columbia.edu) upon arrival to the program to complete the necessary paperwork. It may take up to 3+ weeks to process and receive the first stipend check. Please make sure to plan accordingly. Details upon payment schedules and direct deposit can be answered by the DA. The tuition, health and other fees will be processed for payment by the department, once the student account invoice is provided to the DA reflecting the amounts due in each category. *Please note: This process may vary slightly depending upon your primary source of funding.*

Additionally, all PhD candidates are expected to be Teaching Fellows during one semester per academic year, every year except their first and last of the program. This teaching experience is designed to increase the candidate's ability to effectively interpret and relay complex information to students and is an important part of candidate training. Support is provided throughout the entire five years the student is in the program. Beyond year five, financial support cannot be guaranteed but, if possible, is arranged on an individual basis.

***Funding/Grant Writing Preparation***

In order to best prepare candidates with grant writing, in addition to grant writing courses offered through Mailman School of Public Health, each candidate will meet with the Director and Associate Director of Educational Affairs after the first year of coursework is completed to review and discuss possible funding options to apply for.

A helpful resource to review a listing of potentially appropriate funding sources for PhD candidates: [Funding Opportunities](#)

***Additional Funding Resources***

Funding is available through the Office of Student Affairs for doctoral students who present at national and domestic conferences. The allowable amount is one reimbursement per year. Please see the website below for additional information on the amounts and application:

[Student Conference Funding](#)

The National Research Council of the National Academies sponsors a number of awards for graduate, postdoctoral and senior researchers at participating federal laboratories and affiliated institutions at [Research Associateship Programs](#).

Additionally, for those PhD students funded by our department training grant, there may be a small amount of annual funding used towards conference attendance (*if not attending the annual training grant meeting*). Please inquire for more details.

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Appendix A:

Columbia University, Graduate School of Arts and Sciences  
Department of Environmental Health Sciences

BI-ANNUAL REPORT ON PROGRESS IN CANDIDACY IN THE DOCTORAL PROGRAM

To be submitted to

Nina Kulacki, 722 W. 168<sup>th</sup> Street, 11<sup>th</sup> Floor, Rm. 1112 (early fall and spring)

Name \_\_\_\_\_ CUID \_\_\_\_\_  
(last) (first)

Semester completing this form: (Circle One) – FALL SPRING of Year \_\_\_\_\_

Department \_\_\_\_\_

Qualifying Exam Completed: YES NO  
If no, anticipated date: \_\_\_\_\_

Lab Rotations completed (PhD students only. Include faculty members below)

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

Current/anticipated members of the dissertation committee are (*5 in total – 3 internal to EHS, 2 external*)

1 (sponsor) \_\_\_\_\_

2) (chair) \_\_\_\_\_

3) (2<sup>nd</sup> reader) \_\_\_\_\_

4) 2 external members to the Dept \_\_\_\_\_

Is your thesis committee different than your above stated anticipated dissertation committee?

Yes

difference in committee members:

\_\_\_\_\_  
\_\_\_\_\_

No If you r

Have you met with your thesis committee since your last bi-annual review? (**Reminder** – thesis committee meetings should take place twice a calendar year): Yes No  
the above question, please explain the rationale:

\_\_\_\_\_  
\_\_\_\_\_

If you respon

First Date of Registration in PhD or DrPH program: \_\_\_\_\_

Date of receipt of M.A.: \_\_\_\_\_

Date of receipt of M.Phil.: \_\_\_\_\_

1. What progress have you made toward your degree during the past semester? (Do not include progress recorded in last semester's report.) Please explain departures from last semester/year's goals.

2. Itemize the remaining requirements for your PhD or DrPH degree, particularly including your dissertation, and include your timetable for completing them. Indicate which one(s) you expect to complete during the next semester.

3. Please give the projected date for completion of your dissertation for defense:

4. What have you done this year to develop your teaching skills? (List courses taught independently or as a TA, teaching workshops attended, etc.)

5. Please list any peer-reviewed publications you had this semester/year (including those in progress).

6. Please list any domestic or international conferences you attended this year and your role at the conference (i.e. did you present?). Please list any other presentation opportunities you have had since your last review.

7. List any external fellowships you applied for in this past academic semester. Indicate which ones were successful and provide the award amount.

**Section II to be completed by the dissertation sponsor**

1. Comments on student's progress on the dissertation during the last semester (if not at that point, then address progress on courses and research).

2. Comments on student's objectives for the next semester.

3. Is student's timetable for completing the qualifying exam and/or dissertation reasonable? Is the student's projected date of completion realistic?

4. I have met with the student to discuss his or her progress. Yes No

5. We have also discussed possible external funding sources. Yes No

Affirmed: \_\_\_\_\_  
Signature of sponsor Date

**Section III.**

5. Student's reply to sponsor's comments.

Signed: \_\_\_\_\_  
Signature of student                      Date

Appendix B:

Thesis Committee Form: *(completed twice a year with all Committee members present)*

**Thesis Committee Meeting**

Student's Name \_\_\_\_\_

Date \_\_\_\_\_

Committee Members (please PRINT legibly)

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

Comments:

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Candidate's Signature

X \_\_\_\_\_

Appendix C:

**Detailed EHS PhD Time Line**

<b>Approximate Time in Program</b>	<b>Action</b>	<b>Outcome</b>
<i>Fall Semester/Year One</i>	<i>Meet with Department Chair, Director and Associate Director of Educational Affairs to coordinate first semester</i>	<ul style="list-style-type: none"> <li>• <i>Fall and tentative spring courses confirmed</i></li> <li>• <i>Options to research for possible lab rotations</i></li> </ul>
<i>Fall Semester/Year One</i>	<i>Identify lab rotation</i>	<ul style="list-style-type: none"> <li>• <i>First rotation begins in the first semester and may be completed in the spring</i></li> <li>• <i>Lab rotation summary is completed and sent to Academic Associate Director</i></li> <li>• <i>Lab rotation presentation occurs at the end of the semester</i></li> </ul>
<i>Fall Semester/Year One</i>	<i>Register for Journal Club and attend Seminar. Attend all other applicable classes.</i>	<ul style="list-style-type: none"> <li>• <i>Completion of these courses every semester until dissertation-writing begins</i></li> </ul>
<i>Spring Semester/Year One</i>	<i>Meet with Department Chair, Director and Associate Director of Educational Affairs to confirm spring semester and complete bi-annual progress report and review possible funding options.</i>	<ul style="list-style-type: none"> <li>• <i>Spring courses confirmed</i></li> <li>• <i>Bi-annual progress report completed (see Appendix A and B)</i></li> <li>• <i>Advanced Standing Application submitted for students who have a prior graduate degree</i></li> <li>• <i>Confirm on which grants/awards are appropriate to apply for and when.</i></li> </ul>
<i>Spring/Summer Semester/Year One</i>	<i>End first lab rotation and begin second lab rotation. This lab rotation may continue into the summer Note: Candidates are required to complete up to (3) three lab rotations</i>	<ul style="list-style-type: none"> <li>• <i>2<sup>nd</sup> rotation begins in the spring semester and may be completed during the summer</i></li> <li>• <i>Lab rotation summary is completed and sent to Academic Associate Director</i></li> <li>• <i>Lab rotation presentation occurs at the end of the semester</i></li> <li>• <i>Candidate entering program without Master's degree is awarded the MA through the GSAS</i></li> </ul>
<i>Summer/Year One</i>	<i>Lab rotations continue through the summer as appropriate</i>	<ul style="list-style-type: none"> <li>• <i>Progress toward completing lab rotation</i></li> <li>• <i>Coursework as appropriate</i></li> </ul>

<i>Fall Semester/Year Two</i>	<i>Complete 3<sup>rd</sup> and final rotation, if applicable. Meet with Director of Educational Affairs and/or Associate Director to review bi-annual academic progress report for start of year two unless an advisor has already been selected.</i>	<ul style="list-style-type: none"> <li>• All three lab rotations completed (all candidates complete up to 3 rotations). Final lab rotation summary submitted to Assistant Director of Academic Affairs</li> <li>• Bi-Annual report completed early in the fall semester.</li> <li>• Lab rotation presentation occurs at the end of the semester</li> </ul>
<i>Fall Semester/Year Two</i>	<i>Choose a mentor for thesis in preparation for qualifying exam</i>	<ul style="list-style-type: none"> <li>• Thesis advisor selected if not already confirmed.</li> </ul>
<i>Fall Semester/Year Two</i>	<i>A Teaching Fellow position commences in either the fall or spring of year two</i>	<ul style="list-style-type: none"> <li>• Teaching Fellow position fulfilled (once each academic year until the final year in the program)</li> </ul>
<i>Fall Semester/Year Two</i>	<i>Select a thesis project topic</i>	<ul style="list-style-type: none"> <li>• Topic selected</li> </ul>
<i>Spring Semester/Year Two</i>	<i>Mandatory ethics course</i>	<ul style="list-style-type: none"> <li>• Course completed</li> </ul>
<i>Spring/Summer Semesters/Year Two</i>	<i>Actively working on qualifying exam.<sup>1</sup> Additional coursework as appropriate Revisit potential funding options with advisor</i>	<ul style="list-style-type: none"> <li>• Qualifying exam may be taken as early as end of this semester but must be completed no later than end of fall year three.<sup>2</sup></li> <li>• Final courses have been taken.</li> <li>• Confirm what funding sources are appropriate to apply for and when.</li> </ul>
<i>Spring Semester/Year Two</i>	<i>Meet with primary advisor to review an academic progress report mid-way through year two</i>	<ul style="list-style-type: none"> <li>• Academic Progress Report is completed by mid-February, accepted and kept on file. (See Appendix A and B)</li> </ul>
<i>Spring Semester/Year Two</i>	<i>Once qualifying exam is completed and a total of 6 RUs have been obtained, the MPhil degree is granted</i>	<ul style="list-style-type: none"> <li>• MPhil degree obtained. Application through the GSAS and Associate Director</li> </ul>

<i>Post-Year Two</i>	<i>Six weeks post-qualifying exam, meet with primary advisor to choose Thesis Committee and schedule meeting with Committee</i>	<ul style="list-style-type: none"> <li>• <i>Established Thesis Committee.</i></li> <li>• <i>This information is submitted via email to the <u>Associate Director</u> (<a href="mailto:njk2128@columbia.edu">nj2128@columbia.edu</a>)</i></li> <li>• <i>First meeting scheduled and completed.</i></li> <li>• <i>Thesis Committee Form (see <u>Appendix A and B</u>) completed and submitted to Academic Associate Director</i></li> </ul>
<i>Post-Year Two</i>	<i>Complete thesis work and meet with Thesis Committee every six (6) months.</i>	<ul style="list-style-type: none"> <li>• <i>Met with Committee twice during the calendar year</i></li> <li>• <i>Submitted a Thesis Committee Form to Academic Associate Director</i></li> </ul>
<i>Post-Year Two</i>	<i>Yearly seminar presentation followed up with a bi-annual Thesis Committee Meeting. This occurs up until dissertation defense</i>	<ul style="list-style-type: none"> <li>• <i>Met with Committee twice during the calendar year</i></li> <li>• <i>Submitted a Thesis Committee Form to Associate Director</i></li> </ul>
<i>Post-Year Two</i>	<i>Yearly Teaching Fellow position once every academic year until final year in the program.</i>	<ul style="list-style-type: none"> <li>• <i>Teaching Fellow position is fulfilled once a year.</i></li> </ul>
<i>Every year at the beginning of the fall semester and spring semester until program completed</i>	<i>Bi-Annual Academic Progress Report is reviewed with primary advisor</i>	<ul style="list-style-type: none"> <li>• <i>Academic Progress Report is completed by mid-Sept/Oct and February, accepted and kept on file (see Appendix A and B)</i></li> </ul>
<i>Upon completion of thesis work</i>	<i>Finalize dissertation committee membership (see Dissertation Committee Formation section of this Handbook)</i>	<ul style="list-style-type: none"> <li>• <i>Thesis writing begins</i></li> <li>• <i>Feedback received from thesis advisor</i></li> <li>• <i>Identify a thesis reader who is a dissertation committee member who is on faculty at Columbia</i></li> </ul>
<i>Thesis-writing completed</i>	<i>Schedule dissertation defense with the assistance of the Associate Director</i>	<ul style="list-style-type: none"> <li>• <i>Defend</i></li> </ul>
<i>Post-Defense</i>	<i>Make corrections to thesis and deposit with the GSAS</i>	<ul style="list-style-type: none"> <li>• <i>See GSAS rules for dissertation deposit<sup>3</sup></i></li> </ul>

<sup>1</sup> The qualifying exam is a standing committee that consists of four EHS Faculty Members: Dr. Greg Freyer, Dr. Joseph Graziano, Dr. Matt Perzanowski, the candidate's thesis advisor and an external faculty member nominated by the student's advisor based upon their area of expertise.

<sup>2</sup> Upon completion of the qualifying and exam and an accumulation of 6 RUs (6 semesters of a full time student or 4 semesters if the candidate enters the program with a relevant MA degree), candidates will be awarded the MPhil. **At this point, continuous registration is through Extended Residency (ER).**

<sup>3</sup> <http://gsas.columbia.edu/content/deposit-gateway>