



COLUMBIA
UNIVERSITY

MAILMAN SCHOOL
of **PUBLIC HEALTH**

ENVIRONMENTAL
HEALTH SCIENCES

PhD Student Handbook
2016 – 2017 Academic Year

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This handbook has been created to ensure that EHS PhD students are familiar with Department and School procedures and protocol.

Our Department website is also an important source for the latest department information. Students should also refer to the official School handbook.

*Questions should be directed to Nina Kulacki,
Dr. Greg Freyer, and/or Dr. Mary Gamble.*

For a detailed academic calendar for 2016-17, please see the [Mailman Academic Calendar](#)

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.

PhD IN ENVIRONMENTAL HEALTH 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 and applied knowledge in environmental health sciences;
- Communicate effectively, through writing and presenting, the results of research findings to their scientific peers, other professionals, and the public in the following manner:
 - Compose research articles for submission to peer-reviewed, scientific journals
 - 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 mechanisms linking environmental exposures to health outcomes;
- 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;
- Understand how environmental exposures alter biologic processes and affect the risk of disease development and/or distribution of disease in populations;
- Appreciate how scientific findings in the environmental health sciences can influence policies and programs; and
- Train other 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 (PhD students are expected to provide teaching support for a total of 4 instances – one class per academic year in years 2-4 and one additional instance).
 - Assist students facing challenges with the material
 - Grade papers and exams using graduate-level educational standards.
 - Work with a faculty member in preparing their course and potentially developing a lecture that she/he presents to the class.

PhD PROGRAM REQUIREMENTS AND PROCEDURES

OVERVIEW OF PROGRAM

It is expected that PhD candidates will complete the program within 5 years.

Year 1 – In the first year, students focus on coursework and carry out rotations with eligible faculty.

Year 2 – During year two, candidates will identify a thesis mentor and begin to work on developing a thesis topic with their mentor. Coursework also continues during the second year. By the end of year two, students complete their Qualifying Exam (QE) (see below for description of QE). The primary QE proposal is submitted for funding, such as an NIH F31.

Years 3 to 5 – After a student successfully passes the QE, her/his focus is on completing their thesis work. Details on all aspects of the program follow.

REGISTRATION POLICY

As per the guidelines provided by the Graduate School of Arts and Sciences (GSAS), 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) qualifies students as full-time and entitles them to take an unlimited number of courses during that semester.

Candidates must complete six full RUs to be eligible for a PhD degree. Those who enter the program with a master's degree are awarded 2 RUs of advanced standing (see below). Students without a master's degree must register for RUs in both semesters of years one, two, and three of the program. 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.

In addition to completing required courses and RUs, students must complete the Qualifying Examination (QE) and the dissertation. Once a candidate has fulfilled the RU requirements, he/she must maintain continuous registration in one of two ways: Extended Residency (ER) or Matriculation and Facilities (M&F), based on the following guidelines:

1. Extended Residency registration: Candidates who have completed coursework but have not yet taken the Qualifying Examination. This status also allows students to take a limited number of classes.

2. Matriculation & Fees (M&F) registration: Candidates who have completed all 6 RUs and successfully completed the Qualifying Examination register for M&F. M&F entitles candidates to use University facilities, but not to take courses for credit or for audit.

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 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](#). 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 into the semester, 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 by the student 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.

Leave of Absence and Readmission details

Due to the continuous registration requirement, it is important for candidates to request a leave 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. 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 Director of Academic Programs. For further details and information regarding leaves of absence and readmission, consult the GSAS Bulletin: [Leave of Absence Request Form](#).

MASTER'S DEGREE PROCESSING

Master of Arts (MA) degree

Upon the successful completion of two full time semesters of course work or 2 RUs of credit, candidates are awarded a Master of Arts (MA) degree ***if they have not acquired any master's degree prior to program matriculation.*** This involves [completing a simple application through the GSAS.](#)

Master of Philosophy (MPhil)

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. This typically occurs in the summer of the second year, for students who have a prior master's degree, or the summer of the third year for students who do not have a prior master's degree. In order to receive the MPhil, students must fill out the form found on the [GSAS website.](#)

STIPENDS and FUNDING

All PhD candidates in EHS receive full tuition, health insurance coverage, and an annual stipend, based on Columbia University guidelines, for *up to five academic years (i.e. through June 30th of the 5th year).* *Students should plan their defense and final deposit accordingly. For students who successfully defend in less than 5 years, funding will end one month following the thesis defense.*

In exchange for this support, all candidates are required to maintain a full academic schedule that includes coursework, research, participation in Journal Club, participation as Teaching Fellows, and other academic related responsibilities. Additionally, students receive some funding for travel to conferences based on their current source of funding and the availability of funds.

Please note: The following information is related to how EHS handles support of our predoctoral candidates. Payment schedules will vary based on the source of funding.

Students supported by Central funds or a regular government grant (R01):

- stipend (in accordance with MSPH guidelines)
- health insurance coverage
- tuition

Payments are disbursed via C.U. Payroll and taxes are applied by the Payroll Office. This methodology disburses payment to students on the same schedule as regular full-time employees, i.e., bi-monthly (the 15th and last day of every month).

Students supported by a training grant receive the following:

- stipend (in accordance with MSPH guidelines)
- health insurance coverage
- tuition

- \$300 travel allowance (or amount stipulated by grant award)
- Computer usage costs are supported by departmental funds

Payment for these students is processed via the students' account and taxes are not withheld. Students should consult with a tax advisor as to what taxes are due and when. As of 9/1/2016, distribution of stipends is done monthly, again taxes are not withheld.

If you have questions about your source of funding, or payment schedule, please ask your advisor or mentor, who should then contact the Department Administrator (DA) and CC Nina Kulacki. This distribution of stipends is subject to change in accordance with policy updates.

Initial paperwork processing: Students will meet with the Department Human Resources Administrator upon beginning the program to complete the necessary paperwork. It may take up to 3+ weeks to process this paperwork.

ATTENDANCE AND VACATION

Students are expected to attend all classes, including journal club and weekly departmental seminars, and to participate actively. Scheduling conflicts that arise must be discussed with the student's advisor. Since research and practice are fundamental parts of the curriculum, it is expected that students will work on their advisor's research or pursue other related research when not formally in classes.

Students are allowed two weeks' vacation per academic year (University holidays are approved time off and are not included in the two weeks' vacation). Students must discuss plans for vacation or other absences with their advisor and confirm the details via email.

OUTSIDE WORK/EMPLOYMENT

As a condition of full-time support in EHS, PhD candidates are not permitted to hold any outside positions/employment.

PROGRAM TIME LIMITS

Candidates in the PhD program are expected to complete the program within five (5) years

SATISFACTORY ACADEMIC PROGRESS

Candidates are expected to obtain a grade of B or higher in every course for which they are registered. A candidate receiving a grade below a B, 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.

DOCTORAL WORK/LAB SPACE

All incoming PhD students are assigned a cubicle/workspace in their first year. This space is limited so students in year two who are doing a laboratory-based thesis will utilize desk space in their laboratory. Students doing a non-laboratory based thesis will be assigned appropriate desk space within the department space on the 11th or 12th floors of the Allen Rosenfield Building or in another appropriate location. Typically this space will be within space occupied by their mentor.

TEACHING FELLOW REQUIREMENT

Teaching is considered an important component of doctoral training, and all candidates are required to engage in multiple teaching opportunities during their graduate training.

Each PhD candidate must be a Teaching Fellow (TF) for a total of 4 semesters during their program. Students are required to be a TF once per year in years 2 – 4 of the program. The fourth instance can be done in any year. Typically, students are not a TF in the first and final semesters of their program. The final semester is defined by having an anticipated defense date at the end of the academic year, and the projected defense is verified by the candidate's thesis committee in writing. The student must also hold a thesis committee meeting prior to the end of the Fall semester to confirm that the Spring defense will occur. Note: TF assignments are subject to availability and TF's are assigned through the Director of Academic Programs and the Faculty Director of Graduate Education.

Teaching Fellow positions will be assigned to PhD candidates at the beginning of each academic year. 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. The expectation of TF's is that they will play an active role in curriculum development and, where appropriate, develop and deliver a lecture in the course. The objective of the TF experience is to gain skills in course development and instruction.

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 are encouraged to take advantage of the robust training opportunities available at the newly created Center for Teaching and Learning (CTL). CTL is the resource 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.

SEMINAR and JOURNAL CLUB REQUIREMENT

All doctoral candidates are required to attend the weekly Departmental Seminar. In addition, starting in year one, doctoral candidates are expected to present at the Departmental Seminar, once a year. In the first year, doctoral candidates will give short presentations (15 to 30 minutes)

on their rotation experiences. In the subsequent year, doctoral candidates will provide a full seminar (approx. 1 hr) on the progress of their thesis work.

All PhD candidates must attend Journal Club every semester, with the exception of their final semester in the program. Journal Club meets weekly, and is an opportunity for doctoral candidates to read, critique and analyze primary research papers and present a critical review of 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 instructor determines the format and topic.

THESIS RESEARCH and RESEARCH ROTATIONS

The purpose of “research rotations” is for students to gain experience in a range of settings, and potentially identify a mentor and thesis topic. Students who enter without a clear mentor carry out three (3) semester-long research rotations. For students entering the program who have already identified a mentor and area of research, only two rotations are required. Rotations should be discussed with the Directors of the PhD program. Most rotations are carried out with a faculty member who has a primary or joint appointment in the Department of Environmental Health Sciences or is a mentor listed on one of the Departmental Training Grants. If deemed beneficial to the student’s training, one rotation outside of the Department will be permitted with the approval of the Directors of the PhD program.

Each rotation lasts approximately one semester, consisting of 12 weeks of work for at least 15 hours per week. During this time, the candidate is expected to conduct research 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 first summer semester. Upon completion of the last rotation, the candidate will have identified a thesis 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 (described below) must be completed no later than the summer of year two.

BI-ANNUAL PROGRESS MEETINGS (Years 1&2)

During year one and two, , each student will meet twice during the academic year (fall and spring semesters) with the Directors of the Doctoral Program and Director of Academic Programs. These meetings will provide information and recommendations regarding coursework and qualifying examinations to assist students in designing and executing an appropriate academic plan for the first two years. It will also be a way to monitor student progress with courses, research rotations and selecting a thesis. A progress report will be completed and kept on file.

PhD candidates typically focus on coursework in years one and two in the program. Coursework is based on student needs, so the number of courses taken varies. Required coursework is listed in the next section of this handbook. Typically, students do not take courses beyond their second year, and if they have completed their RU requirement, they cannot take courses, although unofficial auditing is permitted. Courses taken beyond year 2 (only for students who are still on

full tuition, i.e. did not enter with a master's degree) must be chosen in consultation with the student's mentor and the Director of Academic Programs and must contribute directly to their thesis work.

PROGRAMS OF STUDY AND COURSE REQUIREMENTS

Students in the EHS PhD program choose one of four concentrations, or “tracks,” of study: Exposure Science and Environmental Epidemiology, Environmental Epigenetics and Molecular Mechanisms, Environmental Prevention and Mitigation, or Climate and Health. Brief descriptions of the four concentrations follow:

Exposure Science and Environmental Epidemiology Students in this track will be trained in and conduct research on exposure assessment for toxic substances and environmental epidemiology that includes a strong exposure analysis component as well as a solid background in epidemiology, data analysis and statistical methods. Students will conduct work in exposure science (methods, measurements, models) as it relates to the complex inter-relationships between human populations, communities, ecosystems, and chemical, biological, and physical agents, and non-chemical stressors. Many students apply this skillset to epidemiologic studies. Students have carried out work on a range of environmental exposures (air pollution, indoor and outdoor biomass combustion, metals, phthalates, flame retardants, pesticides, radiation, etc.) and health effects (e.g. cardiovascular disease, respiratory effects, neurologic/neuropsychological effects, reproductive effects, and cancer), while being trained on robust methodology (e.g., biomarkers, ecologic investigations, experimental design, exposure/dose assessment, meta-analysis, risk assessment, statistics, and ethics and law). For instance, students have carried out studies on the role of pesticides in fetal development, the respiratory health effects of exposure to particulate matter, the potential contribution of phthalates to inner city asthma rates, and development of biomarkers for breast and liver cancer.

Environmental Epigenetics and Molecular Mechanisms This track is aimed at providing students with an understanding of how to conduct research in environmental epigenetics, molecular biology/biochemistry, and toxicology. Students will conduct work across multiple systems and diseases, including neurological, cardiovascular, and respiratory disease, cancer, prenatal and early life development, healthy and pathologic aging, and others. With the arrival of Dr. Baccarelli, the EHS Department Chairman, who has led a highly successful research program in environmental epigenetics at Harvard which will continue and expand at Columbia with the presence in the program of several other faculty members who are conducting cutting-edge work in epigenetics (Gamble, Herbstman, Lieberman, Miller, Navas-Acien, Santella, and Terry), the Department has one of the largest pools of investigators worldwide working in environmental epigenetics. Not only will students on this track be exposed to cutting-edge concepts and methods in epigenetics, but also, the track includes other faculty members who conduct fundamental and molecular research on mechanisms of environmental disease (animal toxicology, molecular biology, biochemistry, etc.). Students in this track will carry out a thesis project in the wet lab (epigenetics, molecular biology/biochemistry, toxicology), dry lab (computational biology and analysis of complex biological data), or—most commonly—a combination of the two.

Environmental Prevention and Mitigation Prevention and mitigation to offset potential adverse impacts of environmental exposures are the ultimate goal of all educational and research

activities in the Department. Therefore, investigators and research projects in tracks #1 and #2 feed into the Environmental Prevention and Mitigation track methodologically, as well as practically. In fact, the EHS Department's intervention research has typically sprung off from observational and mechanistic studies that opened new avenues for interventions. Examples of training and research opportunities in this track include pollution prevention at gas stations with the objective to reduce benzene exposure from chronic hydrocarbon releases; cookstove intervention trials to investigate the impact of the reduction of exposure to biomass combustion; methyl donor supplementation to prevent the effects of air pollution exposure on DNA methylation; folic acid supplementation to facilitate arsenic methylation and elimination, and various mitigation and educational strategies to reduce arsenic exposure in the United States and Bangladesh, with implications for many affected communities in countries around the world.

Climate and Health 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.

Concentration Specific Courses for PhD Students:

Except for a few exceptions, coursework is completed in the first two years of the PhD program. Some applicable coursework for each concentration is given below. However, there is significant flexibility with coursework, depending largely on a student's research focus. It is recommended that students consult with PhD program leadership and faculty mentors in refining coursework.

Courses recommended in three PhD topic areas

Semester	Exposure Science & Environmental Epidemiology	Environmental Epigenetics & Molecular Mechanisms	Environmental Prevention & Mitigation
Year 1 Fall	-Epidemiology I* (P6400) -Intro to Biostatistics* (P6103) -Biochemistry/Molecular Biology of Eukaryotes -Fundamentals of Toxicology (P8312) -Analysis of Categorical Data** (P8120) -Electives	-Epidemiology I* (P6400) -Intro to Biostatistics* (P6103) -Biochemistry/Molecular Biology of Eukaryotes I -Fundamentals of Toxicology (P8312) -Toxicokinetics (P8313) -Electives	-Epidemiology I* (P6400) -Intro to Biostatistics* (P6103) -Biochemistry/Molecular Biology of Eukaryotes I
Year 1 Spring	-Epidemiology II Design and Conduct of Observational Epidemiology (P8438) -Applied Regression Analysis (P8100)	-Epidemiology II- Design and Conduct of Observational Epidemiology (P8438) -Cellular, Molecular and Biology of Eukaryotes -Epigenetics for Public Health	-Epidemiology II Design and Conduct of Observational Epidemiology (P8438) -Clinical Epidemiology (P8450)

	-Analysis of Categorical Data (P8120) -Electives	-Risk Assessment (P8325)	-Applied Regression Analysis (P8100) -Analysis of Categorical Data (P8120) -Electives
Year 1 Summer	Rotation (students do not take summer classes)	Rotation (students do not take summer classes)	Rotation (students do not take summer classes)
Year 2 Fall	-Molecular Epidemiology - Biological Markers of Chemical Exposure (P8307) -Epidemiology III Applied Epidemiologic Analysis (P8400) -Occupational and Environmental Hygiene (P8306) -Electives	-Molecular Genetics (G4150) -Linear Regression (P8111) -Electives	-Epidemiology III - Applied Epidemiologic Analysis (P8400) -The Randomized Clinical Trial (P8140) -Occupational and Environmental Hygiene (P8306) -Air Pollution (P8309) -Electives
Year 2 Spring	-Responsible Conduct of Research and Related Policy Issues (G4010) -Electives	-Molecular Toxicology (P8308) -Risk Assessment Responsible Conduct of Research and Related Policy Issues (G4010) -Electives	-Public Health Impacts of Climate Change (P8304) -Public Health GIS (P8371) -Responsible Conduct of Research and Related Policy Issues (G4010) -Electives

* Waived for students who have already taken these courses

** if you are not taking Epi I and Intro to Biosats

Climate and Health Track

The following courses are required for all PhD students in the Climate and Health program:

- P8304 – Health Impacts of Climate Change
- P8301 – Atmospheric and Climate Science for Public Health
- P6400 – Epidemiology I*
- P8438 – Epidemiology II: Design and Conduct of Observational Epidemiology
- P6104 – Introduction to Biostatistical Methods
- P8100 – Applied Regression Analysis I
- P9370 – Journal Club (each semester except the final one)
- One course on basic health sciences, as determined in consultation with program faculty as relevant to the student’s specific research interests, such as Physiology, Immunology, Biochemistry, Microbiology, etc.

Note: Students can be excused from specific course requirements if they have had equivalent coursework elsewhere, with permission of the PhD Program Director(s).

*If you have taken any of the courses listed above then you do not need to repeat them.

Elective Courses for PhD Students:

A wide range of courses is available to PhD students from the Mailman School of Public Health and Columbia University. Students are encouraged to build a course program in consultation with their advisor and the PhD Directors that provides a broad and appropriate foundation for their planned dissertation research.

QUALIFYING EXAMINATION (QE)

PhD students are required to pass an oral Qualifying Exam before starting their third academic year of study. The actual exam consists of an oral presentation and Q&A of two separate research proposals in front of the QE exam committee.

The steps leading up to the Qualifying Exam include:

- Between January 1 and February 1 of the student's second academic year (or earlier) in the PhD program, s/he submits two short proposal abstracts to the Co-Chairs of the QE committee, who are responsible for approving the two topics. An outline for each proposal should be submitted by April 1.
- After approval, the two proposals should be submitted to the full QE Exam Committee by June 30.
- The exam date should be scheduled at least 2 weeks after the proposals are submitted and take place no later than the second week in August. Scheduling the date is the responsibility of the student.

1) Written Proposal

a) Primary Proposal

The primary proposal is for the research that the student proposes to carry out for his/her thesis. As such, it should be written by the PhD candidate in consultation with the student's mentor. This will be in the format of an NIH F31, EPA STAR, or other pre-doctoral fellowship program, with the expectation that this will be submitted for funding. The candidate should arrange to meet with the Departmental Faculty F31 Review Committee, roughly 6 weeks prior to Agency's submission due date.

b) Secondary Proposal

The secondary proposal is written on a topic of interest to the candidate – distinctly different from the primary proposal – concerning some aspect of environmental health science. The uniqueness of the second proposal will be decided upon by the candidate's mentor and with the Co-Chairs of the Qualifying Exam Committee.

Timing: These proposals must be completed and defended no later than the summer semester in the second year.

Proposal Format

The primary proposal should follow the most current standard NIH F31 (or other fellowships) format, and secondary proposals should follow the most current standard NIH R01 proposal format (see <https://grants.nih.gov/grants/funding/r01.htm> for the NIH guidelines).

2) Oral Defense of Proposal/Qualifying Exam Committee

Once the time/date is confirmed, Nina Kulacki can assist the student with setting a location for the exam. The Committee is currently a standing committee of three (3) faculty members (Drs. Joseph Graziano, Matt Perzanowski and either Dr. Greg Freyer or Mary Gamble depending on the track of the student in question) and one outside member from another department who is familiar with the topic(s) of the proposal(s). The thesis advisor attends but does not participate in the exam, unless brought in to clarify an issue.

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 coursework, 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.

After the defense, the Committee will vote to: 1) pass the candidate to move forward onto thesis work, 2) ask for minor to moderate revisions to the proposals which will be completed within a specified time period to the satisfaction of the Committee and/or the thesis advisor, or 3) decide that the student is not ready to move forward on thesis work, whereupon the candidate is required to undergo another exam within two months. If the student does not successfully pass the second round of QE's, he/she will be asked to leave the program. Typically, upon successful completion of the Qualifying Examination, the candidate will be awarded a Master of Philosophy (see below).

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) RU's in addition to the Qualifying Exam. For candidates entering the program without a master's degree, another year of full-time status to accumulate the 6 RU's 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.

DISSERTATION PREPARATION AND PROCESS

Formation and Composition of Thesis and Defense/Dissertation Committee:

Within 2 months of successfully passing the QE, doctoral candidates, in consultation with their mentor, choose a Thesis Committee and schedule the first Thesis Committee meeting. It is the responsibility of the mentor to reach out to potential Committee members. The first Thesis

Committee meeting should occur within 3 months of completion of the QE. A Thesis Committee is a critical component of the PhD educational process. The Thesis Committee **MUST** meet regularly (twice a year, ideally in October and April) to monitor student progress, provide guidance to the student and to make sure that at the appropriate time the student is ready to defend her/his thesis.

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.* This formula is consistent with the GSAS Dissertation guidelines. The Thesis Committee members must complete a Thesis Committee Form (Appendix B) for each meeting, which requires approval from all Committee members and must be submitted to the Director at the completion of the meeting. This form is meant to provide a written document that:

- provides what is expected in the thesis
- indicates student progress
- points out difficulties that the student may be having
- makes adjustments to the thesis proposal if necessary
- sets goals for the next meeting and
- determines when the candidate is ready to write and defend their thesis

Once the doctoral candidate and mentor believe that s/he is adequately prepared to write the thesis, 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 that time, the candidate and advisor need to identify a final Dissertation Committee. *There is an expectation that all doctoral candidates will graduate having submitted at least one paper on which they are first author.*

Dissertation Committee Formation

The Dissertation Committee is usually, though not necessarily, the same as the Thesis Committee, and needs to be made up of (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 Dissertation Committee, a role that is only active during the actual dissertation defense.

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).

PhD Dissertation/Thesis

Thesis projects must be original research. Therefore, candidates are obligated to perform studies that collect and/or generate 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. 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 Format Section of this handbook for more information).

Dissertation Format

The actual format of the written thesis is somewhat flexible. It must have an “Abstract,” an exhaustive “Literature Review” (Introduction), and a Chapter the covers final Conclusions and “Future Directions”. As for the format of the body of the thesis, chapters can be publications or manuscripts in preparation. Unpublished data/results can be included as a chapter(s) or as appendices. Some students elect to write a separate “Methods” Chapter, while others include specific methods in the appropriate chapter. Additional information on formatting for candidates’ dissertations can be found in the [“Guidelines” section of the GSAS Dissertation handbook](#).

Copies of accepted EHS dissertations are available in the shelves of the EHS 11th Floor Classroom for viewing.

Preparing Paperwork for the Dissertation Defense

When the sponsor agrees that the candidate is ready to defend his/her dissertation, the Intent to [Distribute and Defend form](#) must be submitted to the Director of Academic Programs.

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

- [Distribution, Defense and Deposit in Ten Steps](#).
- The Director of Academic Programs 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 prior to its circulation to the thesis Dissertation Committee. When the thesis is deemed complete, it is sent to the full Committee, who can suggest additional major and minor edits, as appropriate during the defense.

Scheduling the Defense

Once all chapters and supporting documents have been completed and the sponsor agrees that the dissertation is ready to be defended, the candidate distributes the thesis to all Committee members. Committee members should be allowed a minimum of four (4) weeks to read the thesis. The candidate is responsible for identifying a date and time that is feasible for their sponsor and the Committee, so the Director can assist with securing a room and advertising the

seminar. Since faculty maintain busy schedules, confirming a date/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 school-wide and, 2) a closed-door session immediately following the public presentation, with the candidate's Dissertation Committee and sponsor present.

The closed-door defense portion generally lasts about two to three hours. The Chair of the Committee presides over the defense, which begins with a short discussion (in the absence of the candidate) to determine its general focus.

Committee members pose questions to the candidate regarding his/her thesis and related areas of study. This can follow many formats, but generally, the Chair asks the outside members to ask questions first followed by the two inside members. The mentor does not ask questions, as his/her role is to provide clarification on questions that may arise. After everyone has asked their questions, there is an opportunity to go around one more time. After questioning is completed, the candidate is asked to leave the room while the Committee members discuss whether the dissertation is adequate or not, and what revisions might be required. It is the responsibility of the mentor to communicate with the candidate about required revisions. Depending on the level of revision needed (minor or major), the mentor 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.
- Pass with major revisions: The candidate may submit acceptable revisions within a period of time that is acceptable to the dissertation committee. This may mean 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 the specified time frame will result in a rejection of the dissertation, leaving the candidate the sole option of obtaining the PhD Extra Muros (elsewhere).
- 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, 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.

NOTE: GSAS is in the process of changing these categories, but this has not been finalized. Once that decision has been made, the Handbook will be modified.

Depositing the Dissertation

Once the candidate has successfully passed the dissertation defense and completed any required follow up revisions, 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](#).

Candidates are expected to consult with the Dissertation Office about any special problems encountered while preparing the final document. 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. Complete information regarding the deposit is available through the [Deposit Gateway](#). Students should also review the [FAQ](#) about the electronic deposit system. For questions about the deposit process, please contact Esmeralda McCormick at es183@columbia.edu.

Note: Students are required to submit a professionally bound copy of their thesis to the department. It is also suggested that students submit a bound copy to their thesis advisor.

Degree Conferral

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.

Written Thesis Format

There are two common formats used for the written thesis in the Department of Environmental Health Sciences. The traditional format reads as one cohesive book, with introduction, methods, extensive results, discussion, conclusions and future directions. The alternative “separate papers” format retains the introduction and conclusions/future directions sections, but sandwiches those sections around 3 or more stand-alone manuscripts that are formatted for publication. The format outlined below is a typical representation of the traditional 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, double-spaced, 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:

Title Page

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

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.

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.

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.

Introduction/Literature Review*

This section is a comprehensive 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*

In a traditional thesis, this section will contain multiple chapters. In a "separate paper" thesis, each chapter is a paper formatted for publication for which the candidate is a first author. Ideally, at least one of these papers should be submitted for publication prior to submitting the thesis. Unpublished work can be included in the thesis as a separate chapter(s) or in appendices. Even if papers make up the thesis, it must still contain separate sections for the 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.

Conclusions/Future Directions

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

References

Full references with titles are specified in this section.

*This format can be used for each chapter if the thesis consists of separate papers.

Important Additional Information about the Dissertation Process

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](#).

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. Students can request a meeting with Nina Kulacki to discuss any concerns or questions about process and timelines in order to address any issues before they impede upon current or future academic achievement.

Dissertation Deposit Requirements:

[Electronic Deposit Gateway](#)

Dissertation Office Forms:

[Dissertation Office Forms](#)

GSAS Calendars:

[Dates and Deadlines](#)

Dissertation Binding Options:

Note: *These are the options provided by the University, but students can choose to order this from another source. The hard-bound copy should be on acid-free paper with a hard cover.*

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
www.rustiesbookbinding.net

FORMS

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. 168th Street, 11th Floor, Rm. 1112 (early fall and spring)

Name _____ UNI /CUID _____
(last) (first)

Date form completed _____

Qualifying Exam Completed: YES NO

Date completed or anticipated date: _____

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

- _____
- _____
- _____

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

1 (sponsor) _____

2) (chair) _____

3) (internal EHS) _____

4) (outside EHS) _____

5) (outside EHS) _____

Is your Thesis Committee different than the above stated anticipated Dissertation Committee?

Yes No

If you responded yes to the above question, please explain the rationale for the difference in committee members here:

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

If you responded no to the above question, please explain the rationale here:

Matriculation date: _____

Date MA received: _____

Date MPhil received: _____

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, including milestones like the Qualifying Exam and Dissertation Defense with a timetable for completing these items. Indicate which items you expect to complete in the next semester.

3. Projected date for dissertation 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 student is not yet at that point, then address progress on courses and research*).

2. List 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

Sponsor Signature

Date

Section III.

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

Student signature

Date

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

Thesis Committee Meeting Form

*To be completed twice a year with all Committee members present and submitted to
Nina Kulacki, 722 W. 168th Street, 11th Floor, Rm. 1112 (early fall and spring)*

Student's Name (Uni) _____

Date _____

Committee Members (please print and sign)

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

Comments, feedback, and goals for next meeting:

Projected graduation (semester & year) : _____

Candidate signature Date

Detailed EHS PhD Program Timeline

Approximate Time in Program	Action	Outcome
Fall Semester/Year One	Meet with Faculty Director (Dr. Freyer or Gamble) and Administrative Director of Academic Programs to coordinate first semester	<ul style="list-style-type: none"> • Fall and tentative Spring courses confirmed • Options for possible lab rotation research
	Identify lab rotation	<ul style="list-style-type: none"> • First rotation begins in the first semester
	Register for Journal Club and attend Seminar. Attend all other applicable classes.	<ul style="list-style-type: none"> • Completion of Journal Club every semester until the final semester of the program.
Spring Semester/Year One	Meet with Department Chair, Faculty Director and Administrative Director to confirm spring semester and complete bi-annual progress report.	<ul style="list-style-type: none"> • Spring courses confirmed • Bi-annual progress report completed and submitted • Discuss grants/awards that are appropriate to apply for and when.
	Begin second lab rotation. Note: Candidates are required to complete up to (3) three lab rotations	<ul style="list-style-type: none"> • 2nd rotation begins in the spring semester. • Research rotation presentations occurs • Candidate entering program without master's degree is awarded the MA through the GSAS
Summer/Year One	Lab rotations continue through the summer as appropriate	<ul style="list-style-type: none"> • Progress toward completing lab rotation

Fall Semester/Year Two	Complete 3 rd and final rotation, if applicable. Meet with Faculty Director and Administrative Director to review bi-annual academic progress report for start of year two unless an advisor has already been selected.	<ul style="list-style-type: none"> • All three research rotations completed (all candidates complete up to 3 rotations). Final research rotation summary submitted to Director of Academic Programs • Bi-Annual report completed early in the fall semester • Research rotation presentation occurs at the end of the semester
	Choose a mentor for thesis in preparation for Qualifying Exam	
	A Teaching Fellow position commences in either the fall or spring of year two	
	Select a thesis project topic	
Spring Semester/Year Two	Mandatory ethics course	<ul style="list-style-type: none"> • Complete course
	Actively working on Qualifying Exam Work on funding proposal Additional coursework as appropriate	<ul style="list-style-type: none"> • Qualifying Exam may be taken as early as end of this semester but must be completed no later than end of August in year two • Final courses have been taken
	Meet with department chair and primary advisor to review an academic progress report mid-way through year two.	<ul style="list-style-type: none"> • Academic Progress Report is completed by mid-February, accepted and kept on file
	Once Qualifying Exam is completed and a total of 6 RUs have been obtained, the MPhil degree is granted.	

Post-Year Two	Soon after qualifying exam, meet with primary advisor to choose Thesis Committee and schedule meeting with Committee	<ul style="list-style-type: none"> • Established Thesis Committee • This information is submitted via email to the Director (ninakulacki@columbia.edu) • First meeting scheduled and completed • Thesis Committee Form completed and submitted to Director of Academic Programs
	Complete thesis work and meet with Thesis Committee no less than every six (6) months to fill out form and submit to Director of Academic Programs	
	Yearly seminar presentation This occurs up until dissertation defense	
	Yearly Teaching Fellow position once every academic year until final semester in the program	
Every year at the beginning of the fall semester and spring semester until program completed	Bi-Annual Academic Progress Report is reviewed with primary advisor	<ul style="list-style-type: none"> • Academic Progress Report is completed by mid-Sept/Oct and February, accepted and kept on file (see Appendix)
Upon completion of thesis work	Finalize Dissertation Committee membership (see Dissertation Committee Formation section of this Handbook)	<ul style="list-style-type: none"> • Thesis writing begins • Feedback received from thesis advisor
Thesis-writing completed	Schedule dissertation defense with the assistance of the Director	<ul style="list-style-type: none"> • Defend
Post-Defense	Make corrections to thesis and deposit with the GSAS	<ul style="list-style-type: none"> • See GSAS rules for dissertation deposit¹

¹<http://gsas.columbia.edu/content/deposit-gateway>

Participant Presentation Evaluation Form – Seminar Series

Appendix VI.

EHS Seminar Presentation Evaluation

Presentation	Score	4 - Excellent	3 - Good	2 - Fair	1 - Poor
Eye Contact		Holds attention of entire audience with the use of direct eye contact, seldom looking at notes.	Consistent use of direct eye contact with audience, but still returns to note.	Displays minimal eye contact with audience, while reading mostly from the notes.	No eye contact with audience; entire presentation is read from notes.
Body Language		Movements seem fluid and help the audience visualize.	Made movements of gestures that enhance articulation.	Very little movement or descriptive gestures.	No movement or descriptive gestures.
Poise		Presenter displays relaxed, self-confident nature about self, without mistakes.	Makes minor mistakes, but quickly recovers from them; displays little or not tension.	Displays mild tension; has trouble recovering from mistakes.	Tension and nervousness is obvious; has trouble recovering from mistakes.
Verbal Skills					
Enthusiasm		Demonstrates a strong, positive feeling about topic during entire presentation.	Mostly shows positive feelings about topic.	Shows some negativity toward topic presented.	Shows no interest in topic presented.
Elocution		Presenter uses a clear voice and correct, precise pronunciation of terms so that all audience members can hear presentation.	Presenter's voice is clear and pronounces most words correctly. Most audience members can hear.	Presenter's voice is low. Incorrectly pronounces terms. Audience members have difficulty hearing presentation.	Presenter mumbles, incorrectly pronounces terms, and speaks too quietly for a majority of audience to hear.
Content					

Focus		Purpose of presentation is clear from the outset. Supporting ideas maintain clear focus on the topic.	Topic of the presentation is clear. Content generally supports the purpose.	Presentation lacks clear direction. Big ideas not specifically identified.	No focus at all. Audience cannot determine purpose of presentation.
Organization		Presents information in logical,	Presents information in	Audience has difficulty	Audience cannot understand
		interesting sequence that audience	logical sequence that	following presentation	presentation because there is
		can follow.	audience can follow.	because presenter jumps around.	no sequence of information.
Visual Aids		Visual aids are all readable, clear and professional looking, enhancing the message.	Visual aids are mostly readable, clear and professional looking.	Significant problems with readability, clarity and/or professionalism of visual aids.	Visual aids are unreadable, unclear and/or unprofessional.
Subject Knowledge		An abundance of material clearly related to the research is presented. Points are clearly made and evidence is used to support claims.	Sufficient information with many good points made, uneven balance and little consistency.	There is a great deal of information that is not clearly integrated or connected to the research.	Goal of research unclear, information included that does not support research claims in any way.
Mechanics		Presentation has no misspellings or grammatical errors.	Presentation has no more than two misspellings and/or grammatical errors.	Presentation has three misspellings and/or grammatical errors.	Presentation has many spelling and/or grammatical errors.

