Concentrators' Guide

Environmental Health

2013 – 2014

Master of Science

Boston University School of Public Health

BOSTON UNIVERSITY SCHOOL OF PUBLIC HEALTH
Department of Environmental Health
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Boston University Policy Statement

Boston University and the Boston University School of Public Health reserve the right to change the policies, curricula, or any other matter in this handbook without prior notice. Students will be notified of major changes as soon as practicable after they are decided.

BOSTON UNIVERSITY SCHOOL OF PUBLIC HEALTH
DEPARTMENT OF ENVIRONMENTAL HEALTH

715 Albany Street, Talbot 4 West
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Dear Environmental Health Master of Science Student,

Welcome to the Department of Environmental Health at Boston University School of Public Health. We have developed this guide to help you understand the requirements of the MS program and familiarize you with the opportunities and resources available to our students. In addition to this guide, you can also consult the BUSPH website, Bulletin, and Student Handbook to stay informed about departmental and school-wide policies and procedures.

Your academic advisor will guide you as you make decisions about your course of study and can aid you in determining how to best meet the program's academic requirements, help you find work and integrative experience opportunities, and assist with career planning and networking. You should have received your advisor assignment by mail or email, but if you are unsure who your advisor is, please contact us at 617-638-5940.

By the time you graduate, you will be ready for a career in environmental health - whether in a public agency, an NGO, a nonprofit organization, an environmental consulting firm, or in academic research or some other capacity. Please know that the Department's faculty members are here to help you get the most out of your education. Enjoy your studies!

Sincerely,

Jennifer Schlezinger, PhD
MS Program Director
Department of Environmental Health

Mission
The mission of the Boston University School of Public Health is to improve the health of local, national and international populations, particularly the disadvantaged, underserved and vulnerable, through excellence and innovation in education, research and service.

Strategic Themes
Involved: Emphasize real-world involvement and meaningful partnerships
Interconnected: Emphasize interdisciplinary efforts and integrated programs
Global: Emphasize global health issues and perspectives

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QUICK REFERENCE GUIDE

Please see the SPH Bulletin (bu.edu/bulletins/sph) and the SPH Student Handbook (sph.bu.edu/studenthandbook) for all resources available to SPH students.

Subject	Office & Contact Info
Course Materials	**Online**: Course information, assignments, and syllabi are often posted on a course webpage at learn.bu.edu. **Course Readers and textbooks** are available for purchase through Barnes & Noble bookstore located at 660 Beacon Street, Kenmore Square, Boston University Charles River Campus.
Careers: Career advising, resume reviews; alumni networking; job postings, career fair; employer info sessions	**Career Center**: sph.bu.edu/careers Talbot 113 East Maria McCarthy, mamcc@bu.edu, 617-638-4602 Lauri Rich, lcrich@bu.edu, (617) 414-1405 Lisa Toby, ltoby@bu.edu, 617-638-4675
Financial Assistance	**Office of Student Financial Services**: www.bumc.bu.edu/osfs osfs-sph@bumc.bu.edu or 617-638-5130 **Financing Your Education**: sph.bu.edu/admissions/financingyoureducation
Housing, Seeking a roommate	**Office of Housing Resources**: bumc.bu.edu/ohr
Library Resources: paper and online books and journals; reserve materials; computer labs; research guides	**Alumni Medical Library**: med-lib.bu.edu L Building, 12th Floor 617-638-4232 **Boston University Library Network**: bu.edu/library
Parking and Transportation: student T passes	**Office of Parking and Transportation Services**: bumc.bu.edu/parking 710 Albany Street 617-638-4915
Registration; Graduation Applications; Concentration Change Form; Course Rotation Guide; Academic Policies; Transcripts	**Registrar's Office**: sph.bu.edu/registrar Talbot 2 Center Chris Paal, cpaal@bu.edu or Katie Boss, keboss@bu.edu, 617-638-5057 Degree students **register** online at bu.edu/studentlink **Unofficial transcripts** available at bu.edu/studentlink; **Official transcripts** available at bu.edu/reg
Student Health **Behavioral Medicine**	**Student Health Services**: bu.edu/shs or bu.edu/mentalhealth 881 Commonwealth Avenue 617-353-3575
Student Services: Student organizations; Academic accommodations; Orientation; Commencement; Student events	**Office of Student Services**: sph.bu.edu/studentinsider or sph.bu.edu/students Talbot 2 Center Mary Murphy-Phillips, mcmurph@bu.edu, Andrea Tingue, atingue@bu.edu or Brendan Hoey, brendan2@bu.edu, 617-638-5062

IMPORTANT DATES THROUGHOUT THE ACADEMIC YEAR

Boston University School of Public Health (BUSPH), like other schools & programs on the Medical Campus, maintains its own academic calendar. It is important that students always refer to the BUSPH registration packets, academic calendar, and websites for SPH-specific information. That said SPH endeavors to align its schedule with the Charles River Campus schedule while still allowing for 15 class meetings for our four-credit courses.

Academic Calendar and Course Schedules
Visit the Registrar's Office website to learn more about important dates on the academic calendar such as holidays and exam dates (sph.bu.edu/registrar). Also available on this page are course schedules, a course rotation guide, reader information and more.

Master of Science Graduation Calendar			
	September 25, 2013 Graduation	**January 25, 2014 Graduation**	**May 19, 2014 Graduation**
Graduation Application Due (submitted to the BUSPH Registrar)	July 1, 2013	October 31, 2013	February 14, 2014
Integrative Experience Abstract and Abstract Submission Form Due	At least 30 days prior to oral presentation	At least 30 days prior to oral presentation	At least 30 days prior to oral presentation
Final Paper Draft Due	One week prior to oral presentation	One week prior to oral presentation	One week prior to oral presentation
Last Date to hold Oral Presentation	August 16, 2013	November 26, 2013	April 14, 2014
Deadline for Submission of Approved Final Paper (submitted to Integrative Experience Advisor, MS Program Director and EH Curriculum Coordinator)	September 11, 2013	December 16, 2013	May 2, 2014

*Dates are subject to change

School of Public Health Policy on Religious and Government Holidays
The School, in scheduling classes on religious or government holidays, intends that students observing these holidays be given ample opportunity to make up work. Faculty members who wish to observe such holidays will arrange for another faculty member to meet with their classes or for canceled classes to be rescheduled.

Emergency Cancellation Information
In the event of an emergency or class cancellation, notices will be posted to the BUSPH Student Insider (http://sph.bu.edu/si) and the BUSPH web site (http://sph.bu.edu). Email messages will also be sent to faculty, staff and students in the event of closings. A message will also be posted to the BUSPH main telephone number: 617-638-4640. Instructors are required to reschedule cancelled classes. Students will be notified by the instructor of make-up dates for any cancelled classes.

PLEASE NOTE: Do not rely on information about the Charles River Campus or Boston University. The Boston University Medical Campus has different closing policies from the Charles River Campus. Obtain information specific to SPH from the above resources.

Section 1 Introduction to the Master of Science in Environmental Health

OVERVIEW

The Master of Science (MS) program in Environmental Health provides students with a solid foundation, in both science and skills, to work as a professional in the field of environmental health. The program features a set of courses required of all students, as well as four areas of more focused study, each with its own course requirements. These areas of study reflect the Department of Environmental Health's strengths in environmental epidemiology, urban and community environmental health, toxicology and exposure and risk assessment.

The majority of the required courses are in the Department of Environmental Health but this program, like the PhD program in Environmental Health, relies on methods courses offered in the BU School of Public Health departments of Epidemiology and Biostatistics and the Division of Graduate Medical Sciences (GMS) at the BU School of Medicine. The elective courses for the MS program range more broadly, with about one-third drawn from the Department of Environmental Health, one-third from other departments in BUSPH (again, mostly Epidemiology and Biostatistics), and one-third from other schools at BU (mostly GMS). Thus, although the MS program is strongly rooted in the Department of Environmental Health and the School of Public Health, it also takes advantage of the rich intellectual community of Boston University to create a deep and flexible curriculum.

The MS program trains students for scholarly careers in research in academic and non-academic settings and provides in-depth training in Environmental Health. Students who successfully complete the MS program are eligible to apply for the PhD program in the Environmental Health. A description of the PhD program is available at sph.bu.edu/eh.

MASTER OF SCIENCE REQUIREMENTS

Students pursuing a Master of Science in Environmental Health are required to:

- Complete 48 graduate-level credits, as described in Section 2
- Complete at least 36 credits within the Boston University School of Public Health, no more than 8 credits from outside BUSPH and no more than 8 transfer credits
- Complete seven (7) common required courses with a grade of B or better
- Complete a final Integrative Experience paper
- Successfully present the final paper and receive approval from the reviewing faculty (first and second readers)
- Earn a BUSPH grade point average (GPA) of 3.0 or higher
- Complete the MS degree within five years

ADVISING

Boston University offers its students an enormous array of intellectual opportunities and resources on both the Medical and Charles River Campuses. In addition to the academic requirements, it is up to you to make choices that best enhance your career preparation. In order to assist you with these decisions, you will be assigned a faculty advisor upon accepting the School's offer of admission. Your advisor is available to discuss coursework, potential research topics, career paths, and other issues relevant to the student's success; however, the student bears all responsibility for meeting administrative and academic requirements and deadlines. Your advisor can help you make the most of your investment. Please contact the Department Curriculum Coordinator, Carolyn Weber, at carolyn5@bu.edu if you need help in locating your advisor.

You and your advisor will also have access to an online degree requirements tracking system called "Degree Advice" on the Student Link. This system is best used as a complement to meeting with your advisor. It is not a failsafe accounting of your degree progress.

Students should consult with their assigned advisors as soon as possible after entering the concentration to discuss their overall goals and plan a course of study. Prior to the start of each semester, concentrators must consult with their advisors to plan and review their program for the upcoming semester.

We encourage you to talk with your advisor any time you are concerned about your ability to remain in strong academic standing. S/he will contact you if it appears that you are at risk for being placed on academic probation. The role of your advisor is to support you and collaborate with you on a learning plan that will facilitate your success.

In addition to your assigned academic advisor, you are welcome to consult with any faculty member in any department, your curriculum coordinator, or staff in the Registrar's, Student Services, or Education Offices. We have an open door policy here at the School and hope you'll make the most of all of the resources available to you.

A student may request a change in academic advisors by contacting the MS Program Director and may request particular academic advisors with that faculty member's written (or emailed) agreement. At the time a student chooses an internship/research experience for the final paper, a change in advisors may be appropriate to provide the student with the best available supervision for completing the integrative experience. All advisor changes should be reported to the Department Curriculum Coordinator.

If you have questions, concerns, or comments about the overall academic curriculum and policies of the concentration or the advising process, please speak with Jennifer Schlezinger, MS Program Director, at jschlezi@bu.edu or Carolyn Weber, Department Curriculum Coordinator, at carolyn5@bu.edu.

Section 2 Course Requirements

DESCRIPTION OF CURRICULUM AND COURSES

Competencies

All students who successfully complete the MS program will be competent to:

- Communicate the basic characteristics of major chemical, physical, and biological, hazards and the properties that govern the hazards' behavior in the environment;
- Explain the scientific characteristics (e.g. route of exposure, dose response, mode of action) of major biological, chemical, and physical hazards that result in human health risk;
- Explain and analyze genetic, physiologic, and social factors that affect the susceptibility to adverse health outcomes following exposure to environmental hazards;
- Critically evaluate and interpret the hypothesis, experimental design, methods and results presented in a paper from a technical journal article in an environmental health discipline (toxicology, epidemiology, exposure assessment);
- Analyze and interpret environmental health data;
- Identify appropriate intervention strategies for specific environmental health problems; and
- Communicate the results of a scientific study in a written and oral format.

To earn the MS in Environmental Health, students must take a total of 48 credits, as detailed below. Students must complete the program within a period of five years. As a condition of acceptance, students may be expected to complete necessary preparatory courses prior to matriculating (chemistry, biology, and upper level mathematics).

The MS program trains students for careers in the research arena and includes an integrative research experience after which students present their work in a paper and in a formal seminar.

The necessary courses for the MS curriculum comprise:

- Seven **common required courses**, required of all students;
- **required courses** for one area of focused study, chosen by the student from among four possible areas of study:
  - environmental epidemiology,
  - urban and community environmental health,
  - toxicology
  - exposure and risk assessment

  Exceptions to the courses in the focus area may be requested, with the written approval of the student's advisor. The student seeking an exception must submit a written petition to the EH MS/Doctoral/Post-Doctoral committee; the petition must include a detailed justification for the exception.

- Three or more **elective courses** from Appendix A, depending on the area of study chosen, to complete the 48 credits. The student may also choose courses that are required in areas of study other than his/her own to satisfy the elective courses requirement.

  Boston University courses not listed in this document may be approved as electives. The student seeking credit for such a course must submit a written petition to the EH MS/Doctoral/Post-Doctoral committee; the petition must include detailed information on the content and requirements of the course.

Each of these elements of the curriculum is described below.

Common Required Courses

The common required curriculum consists of the following seven courses, which full-time students complete during the first year of study:

- **Physiologic Principles for Public Health** (SPH EH710) covers both cellular and organ physiology, is designed to provide the foundation for courses that require an understanding of the basic mechanisms of body functions. It examines the basics of cell structure and function, cell signaling, and the functional activity of specific organs.
- **Foundations of Environmental Health** (SPH EH717) considers the technical foundations of environmental hazards, their impacts on public health, and the role of social, political, and regulatory factors in assessing, controlling, and preventing environmental hazards. Topics covered include water pollution, ambient and indoor air pollution, solid and hazardous wastes, pesticides, food safety, and occupational health.
- **Analytical Methods in Environmental Health** (SPH EH725) explores the skills, methods and critical thinking framework necessary for upper level environmental health courses and for success as environmental health professionals. Environmental Health is a field of public health in which environmental hazards and health risks to populations are identified, assessed and managed through a data-driven process. This course extends the depth of concepts taught in EH717 and should be taken concurrently for students entering in the fall semester.
- **Introduction to Toxicology** (SPH EH768) introduces the routes of exposure to environmental toxicants and traces the biochemical pathways through which xenobiotics are absorbed, metabolized, distributed and excreted. It introduces students to the molecular mechanisms of xenobiotic damage, including mechanisms of DNA damage and oncogene activation, and explains the effects of these molecular and cellular changes on the function of the respiratory, reproductive, immune, and nervous systems.
- **Exposure Assessment** (SPH EH804) is a critical component of occupational and environmental epidemiology, of determining compliance with health and safety regulations, and in conducting human health risk assessments. This course covers the basic concepts and methods of study design, data collection, and data analysis/interpretation. Students analyze relevant case studies and conduct a study in which they develop their own exposure assessment strategy, collect and analyze data, prepare a final report, and present their findings.
- **Introduction to Epidemiology** (SPH EP713) introduces research methods for the study of the distribution and determinants of disease in people, and provides much of what we know about the effects of environmental exposures in human populations.
- An understanding of biostatistics is required for the appropriate use of epidemiologic methods and for the interpretation of findings from both epidemiology and toxicology. **Introduction to Statistical**

Computing (SPH BS723) is a required course in biostatistics that takes an applied hands-on approach, with students using the SAS statistical package to perform analyses on sample data sets. Students with no prior introductory course in statistics will be required to take SPH BS704; in this situation, BS704 will count for elective credit in the MS program.

Required Courses: Focus in Environmental Epidemiology

Graduates in the environmental epidemiology area of study will be competent to:

- participate in the design and conduct of epidemiologic studies, including developing a scientific hypothesis, choosing a study design, and taking account of chance, bias, and confounding
- understand and be able to articulate methodological considerations specific to the study of environmental risk factors
- use SAS, Stata, "R" or similar statistical software to analyze a complex epidemiologic dataset
- communicate the results of research in environmental epidemiology, both orally and in written form
- critically evaluate research studies in environmental epidemiology, including study design and methods as well as the interpretation of findings

The curriculum for students choosing to focus in environmental epidemiology comprises four courses, including two courses in epidemiology and one in biostatistics:

- **Intermediate Epidemiology** (SPH EP813) further develops epidemiologic methods beyond introductory epidemiology.
- **Advanced Epidemiology** (SPH EP854) is a more advanced methods course, covering topics including causal models, confounding, randomization, interaction, meta-analysis, and causal inference.
- **Environmental Epidemiology** (SPH EH757) addresses methodological issues that are particularly relevant to the study of environmental hazards, including exposure assessment, exposure modeling, cluster analysis, and sources of bias.
- Finally, the fourth required course in this area of study includes a second course in statistics, **Statistical Methods for Epidemiology** (SPH BS852), which builds directly on the introductory course in the common curriculum. In this second course, students learn to control confounding via stratification and multivariate techniques such as logistic regression and proportional hazards models.

Together, these required epidemiology and statistics courses ensure that the student gets rigorous training in quantitative research methods.

Required Courses: Focus in Urban and Community Environmental Health

Graduates in the urban and community environmental health area of study will be competent to:

- apply the research methods of environmental health, including soliciting environmental health concerns from residents, analyzing health concerns of the urban built environment
- participate in the design and conduct of research studies of individual-, local-, neighborhood-, and metropolitan-level environmental health risks and outcomes

- develop and manage interventions to reduce health hazards of the urban environment, including indoor and outdoor air pollution and exposures to allergens and pesticides in and around urban housing
- manage the ethical and methodological issues inherent in participatory community-based studies that involve residents as research collaborators
- bring an environmental health perspective to projects for new urban development or the renovation or rehabilitation of degraded urban environments

There are four required courses in the urban and community environmental health area of study: a survey of environmental health issues of the urban setting, environmental epidemiology, and two of four research methods courses.

- **Environmental Epidemiology** (SPH EH757) addresses methodological issues that are particularly relevant to the study of environmental hazards, including exposure assessment, exposure modeling, cluster analysis, and sources of bias.
- **Community-Based Methods in Environmental Health** (SPH EH800) provides an in-depth survey of environmental health issues of the urban setting, including traffic, hazards of poor housing, hazardous waste, health outcomes including asthma and obesity, and social disparities in both exposures and impacts.

  Like the required courses for the environmental epidemiology area of study, the required courses for the urban and community environmental health area of study include research methods courses to ensure that the student receives the rigorous methodological training needed to work in this complex subject area. The student chooses two of the four courses listed below; one from each listed pair:

  - **Analysis of Correlated Data** (SPH BS857) OR **Qualitative Research Methods** (SPH SB818)
  - **Geographic Information Systems in Public Health** (SPH EH811) OR **Social Epidemiology** (SPH EP775)

Required Courses: Focus in Toxicology

Graduates in the **toxicology area of study** will be competent to:

- analyze toxicological data in the literature and evaluate toxicity factors and standards
- derive toxicity factors and standards from toxicology and exposure datasets

In addition, graduates in the toxicology area of study who have focused their studies in the laboratory setting will be competent to:

- design and conduct in vitro experiments
- perform cell culture and basic protein biochemistry and molecular biology techniques in the context of their experimental design
- analyze data from experiments and interpret their own, as well as published, experimental results

The required courses for the area of study in toxicology comprise two advanced courses in Environmental Health and one advanced Biostatistics course. All students in this area will take:

- **Intermediate Toxicology** (SPH EH840) uses a case study approach to teach the molecular mechanisms of action of toxicants, including mechanisms of oncogenesis, neurotoxicity, and

immunotoxicity. The course emphasizes dose-response relationships, genetic differences in toxic effects, and the use of toxicology data in regulating chemicals; and

- **Risk Assessment Methods** (SPH EH866) teaches procedures for using scientific information to estimate the human health risk of exposures to chemicals (including the strengths, weaknesses, and uncertainties of these methods), as well as the use of such risk estimates to manage environmental hazards; or
- The third required course for the toxicology area of study is **Intermediate Statistical Computing & Applied Regression Analysis** (SPH BS805). This course covers intermediate level statistical programming (SAS) and various statistical topics including analysis of variance and covariance, analysis of correlated data, linear regression, logistic regression, and statistical power among others. This course also requires the student to register for a lab section as part of the course.

Required Courses: Focus in Exposure and Risk Assessment

Graduates in the **exposure and risk assessment area of study** will be competent to:

- conduct risk assessments utilizing probabilistic methods
- evaluate environmental datasets and design additional sampling plans and analyses
- communicate results of exposure and risk assessments to multiple audiences
- design exposure assessments using field and modeling approaches
- provide exposure analysis for epidemiological study design

The area of study in exposure and risk assessment has four required courses. For one of the four required courses the student may choose between two options. Two of the required courses for the exposure assessment area of study also appear in other areas of study, and have been described above.

- **Intermediate Statistical Computing and Applied Regression Analysis** (SPH BS805; described above), because exposure assessment often requires the use of multiple regression methods to analyze complex datasets;
- **Geographic Information Systems in Public Health** (SPH EH811)—because GIS is increasingly used to model exposures that have a spatial component, such as air emissions or plumes of contamination in groundwater;
- **Intermediate Toxicology** (SPH EH840), for those more interested in the scientific basis of human health risks.

Finally, students choose between two courses that offer real-world professional experiences:

- In **Risk Assessment Methods** (SPH EH866; described above), students learn procedures for estimating the human health risks of environmental hazards.
- **Directed Research in Environmental Health** (SPH EH962) offers students the opportunity to gain hands-on experience on an ongoing research project.

Electives

Elective courses may be drawn from among (a) required courses in areas of study other than the student's chosen area of study; and (b) the courses listed as electives (see Table 1). Other courses may be approved as electives through a formal request to the student's advisor (see below).

Directed Research (SPH EH962) in any of the four areas offers students the opportunity to investigate methods, data and topics not covered elsewhere in the curriculum.

Typical electives chosen by students of **environmental epidemiology** will allow further specialization, providing the in-depth training needed in this field. Options include further specialization in epidemiologic methods, GIS and spatial epidemiology, exposure assessment, and statistical methods (e.g., generalized linear models, analysis of correlated data).

Likely electives for students in the **urban and community environmental health** area of study include a second course on the urban environment, and advanced methods courses in epidemiology and biostatistics.

Students in the **toxicology** area of study can choose from electives that would allow further specialization in immunotoxiology, neurotoxicology or regulatory toxicology.

Likely electives for students in the **exposure and risk assessment** area of study include advanced courses in epidemiology, biostatistics or risk assessment.

Sample Programs of Study (By Semester)

Sample course schedules for an eighteen month program of study are presented in Appendix A. Students should consult their faculty advisor in selecting the most appropriate courses for their career and to meet the requirements for each of the four areas of focused study: environmental epidemiology; urban and community environmental health, toxicology; and exposure and risk assessment. In each area of study, the student is required to take 48 credits.

The first year of study is similar in all four areas of study, since it includes the seven common required courses. Students who have previously taken an introductory course in statistics will be able to take the required course BS723 Introduction to Statistical Computing in the fall, leaving a slot in the spring term for an elective as shown in Appendix A. Students with no prior coursework in statistics will take SPH BS704 Biostatistics, the biostatistics core course in the MPH program, in the fall as a prerequisite to taking BS723 Introduction to Statistical Computing in the spring as shown on the sample schedules in Appendix A.

In the third semester of study in each area of study, students complete the required courses in their chosen area. Elective courses will be taken mostly in the third semester, after completing the common required courses.

Section 3 Integrative Experience

INTEGRATIVE EXPERIENCE

All students participate in an integrative experience that has three components; the research or internship experience, a paper in which the student conducts a rigorous analysis of the work conducted, and an oral presentation of the paper in a departmental seminar. The experience could take the form of a research rotation at BUSPH (or other research institution) or an internship opportunity at a government agency or consulting company. Upon completion, a paper is written in which the research is placed in the context of the public health problem addressed. The paper is presented in a formal seminar.

The Integrative Requirement

The MS program requires an integrative experience in the form of a research rotation at BUSPH (or other research institution) or an internship opportunity at a government agency or consulting company. In offering these different types of opportunities, the program recognizes that different environmental health professionals have different career interests. This flexibility in the requirement allows each student to engage in a hands-on integrative experience that is suited to his/her particular career interests and facilitates the transition from the MS program to the next step on his/her career path. The integrative experience, though required, carries no academic credit, unless taken as EH962 and can be done during the academic semesters or during the summer.

Most research experiences will be embedded in ongoing projects in which the Department's faculty members are directly involved. During these experiences, students will have the opportunity to apply the skills and knowledge acquired in the classroom while fully engaging in all aspects of the ongoing projects. For instance, one recent rotation provided a student with the opportunity to prepare for and conduct an investigation of jet fuel exposure among military personnel. The student was provided with background reading material (such as copies of proposals and relevant papers), participated in discussions about study design and methodological issues while attending regular project meetings, prepared the sampling materials and equipment for the field effort, and interacted with study participants while collecting environmental and biological samples from military personnel at an Air Force Base in North Dakota. Another recent rotation provided an MS student with the opportunity to participate in laboratory research. The student conducted experiments to support investigations of the effects of environmental toxicants on bone physiology.

Research conducted at other research institutions, government agencies, or consulting companies provide similar opportunities for technical experience.

Timeline and Requirements

- In preparation for the Integrative Requirement, the student will submit a brief (1-2 pages) proposal and form that documents the experience. This includes the location where the work is completed, the advisor (first reader), a second reader, the topic and an outline that presents the goal/hypothesis, background, and methods/analyses to be used during the experience. The

proposal is submitted to the student's Integrative Experience advisor and second reader for review. Once approved, a copy of the proposal must be handed in to the Department Curriculum Coordinator for the student's file. The proposal must be completed at least one month prior to the start of the research. The student must complete a minimum of 24 credits before beginning their Integrative requirement. The student will meet regularly with the advisor. Mid-way through the completion of the experience or by the time the student has fulfilled 36 credits, the student will provide a revision (if necessary) of the proposal and a written progress report. The progress report will also be submitted to the Department Curriculum Coordinator.

  - The student must submit an "Integrative Experience Proposal Form" before the initiation of the Integrative Experience research rotation/internship opportunity. Please see the Department Curriculum Coordinator for access to the form.

- Following the research/internship experience, students will prepare a short paper (less than 30 pages) in which the research or analysis conducted is placed in the context of an environmental health problem. The focus of the paper is a substantive rigorous review and analysis of the environmental health literature relevant to the research conducted, the research problem and methods used to organize, analyze and interpret the data, and a discussion of the findings, data gaps and next steps. The student will submit a draft of the paper to their Integrative Experience advisor prior to presenting their work to the department in a seminar.
- The research/internship and analysis will be presented in a formal departmental seminar attended by faculty and students. The student's contribution to the review/evaluation must articulate the public health significance of the project and describe how the experience relates to what the student learned through MS coursework. The student will have 30 minutes for the presentation and 15 minutes to answer questions about their work.
- The proposal, research and seminar will be graded as Pass or Fail by the first and second reader, unless taken for credit as Directed Research (EH 962)

Section 4

Research Opportunities & Professional Development

RESEARCH OPPORTUNITIES IN ENVIRONMENTAL HEALTH

The research rotations offered through faculty in the Environmental Health Department present valuable experiences for students in the MS program. If you are interested in participating on a research project please contact the listed faculty member. Each rotation will be initiated with a written agreement between a faculty member and a trainee. For a complete list of updated EH masters research opportunities, please visit sph.bu.edu/eh/studentresearch.

PROFESSIONAL DEVELOPMENT

Department Seminars

MS students are expected to regularly attend the weekly EH Department Doctoral Seminars, and are expected to explore the other seminar/meeting series, identifying at least one series to attend as frequently as possible.

Public Health Forum

Public Health Forum is a monthly presentation at which students, faculty, and colleagues gather to examine contemporary problems or issues in the public health world. Speakers include public health practitioners and policy experts from around the globe and faculty from schools of public health universities. The goal of Public Health Forum is to promote awareness and dialogue about matters critical to the public's health. The Forum is held monthly from 12 –1 PM during the academic year in room L-112. Topics for the Forum will be posted monthly throughout the school and medical campus as well as on the SPH web. If you have any questions about the Public Health Forum, please contact Kara Peterson at kara@bu.edu. Past topics include: Conflict, Oil Spills and Public Health: The Case of Nigeria, Fraud in Medical Research; Strategies for Addressing Health Disparities in Boston; and Male Circumcision: Our Best Available HIV Vaccine.

Professional Associations

In addition to skills that are gained through classes and professional development seminars, students benefit greatly from joining professional associations. These associations offer students opportunities to meet people working in public health, learn about job opportunities, understand trends in the field, and polish communication and presentation skills at annual meetings. Students are strongly encouraged to become active in any of the following organizations:

- American Public Health Association (APHA) - apha.org
- Massachusetts Public Health Association (MPHA)- mphaweb.org
- National Environmental Health Association (NEHA)- neha.org/index.shtml
- Massachusetts Environmental Health Association (MEHA)- mehaonline.net
- Society of Toxicology (SOT) - toxicology.org
- Society for Risk Analysis- New England (SRA-NE) - sra-ne.org

Environmental Health Resources:

- Environmental Health Perspectives (EHP) - http://ehp.niehs.nih.gov/
- Journal of Exposure Science and Environmental Epidemiology- nature.com/jes/index
- Environmental Health News (Above the Fold) - environmentalhealthnews.org

Section 5 Student Policies

In addition to the selected academic policies listed below, all students must adhere to all Boston University School of Public Health academic policies, available at sph.bu.edu/registrar/policies; the University's Administrative Policies, available at bu.edu/lifebook; and the policies listed in the School of Public Health Student Handbook, available at sph.bu.edu/studenthandbook.

COMPLIANCE REQUIREMENTS FOR ALL BOSTON UNIVERSITY STUDENTS

All students, including non-degree students, must comply with the Massachusetts Motor Vehicle Law, BU Alert telephone number, immunization (as applicable), and payment requirements in order to be in status with the university. You may check your compliance status at bu.edu/studentlink.

The SPH Registrar's Office is blocked from entering registration for any student who is not in compliance with university requirements and cannot manually override this block and register students. If you need assistance with compliance information, please talk with a staff member in the SPH Registrar's Office.

If you have any questions regarding the purpose of the compliance requirements, go to: bu.edu/reg/information/complianceinformation.

Massachusetts Motor Vehicle Law

The Massachusetts Motor Vehicle Law requires that all out-of-state students, including those who do not bring cars to Massachusetts, sign an acknowledgement that they have been informed of the law.

The Massachusetts Motor Vehicle Law requires out-of-state students bringing vehicles into the Commonwealth of Massachusetts to file a nonresident driver statement with the local police department in the city in which their university is located: "It is unlawful for a resident student to fail to file a nonresident driver statement with the police department located in the same city or town as the school or college attended, in accordance with Section 3 of Chapter 90 of the Massachusetts General Laws. Failure to file such statement is punishable by a fine not to exceed $200."

Boston University, in turn, is required by the Commonwealth to keep a record and provide proof to the state that students have been apprised of the law. Eligible students must formally acknowledge they have been notified of the law by clicking on the acknowledge button at www.bu.edu/link/shortcut/massmotorlaw. Students who fail to do so will not be in compliance and will be unable to register for upcoming semesters.

Instructions for complying with the law:

- All out-state-students, including those who do not bring cars to Massachusetts, are required to read the statement on www.bu.edu/link/shortcut/massmotorlaw and click on "I acknowledge."

- In addition, STUDENTS BRINGING VEHICLES into the Commonwealth of Massachusetts are required to download and complete the Nonresident Driver Statement from the Massachusetts Registry of Motor Vehicles website at www.mass.gov/rmv/forms/20098.pdf.
- Mail form to: Office of the University Registrar, 881 Commonwealth Avenue, Boston, MA 02215
- The Registrar's Office will mail a copy of the student's form to the Boston Police Department. The Registrar's Office will then mail a state-approved decal to the student's local address. This decal must be prominently displayed in the uppermost center portion of the windshield of the student's vehicle.

BU Alert Telephone Number

A BU alert number is the cell phone to which the University can send a text message in the event of an emergency on campus. If you do not have a cell phone, a voice message can be sent to the telephone number of your choice.

Immunization Requirements

In the spirit of public health, we ask all students to be sure their immunizations are up to date, although part time students will not be asked to verify their immunization status. International students must meet mandatory state immunization requirements at the time of registration. For more information about immunization requirements, go to the Student Health Services website, bu.edu/shs/required.

Tuition Payment

All students must pay their bill by published tuition payment deadlines.

BOSTON UNIVERSITY INFORMATION REGARDING ACADEMIC HONESTY

Academic honesty is essential for students to attain the competencies the University and School expect of graduates, and any action by a student that subverts these goals seriously undermines the integrity of the educational programs at the School. Students at the Boston University School of Public Health are expected to adhere to the highest standards of academic honesty.

Academic misconduct is any intentional act or omission by a student which represents his or her academic achievements, or attempts to misrepresent these achievements. While not an exhaustive list, the following acts constitute academic misconduct:

- Cheating on examinations: The use or attempted use of any unauthorized books, notes or other materials in order to enhance the student's performance in the examination, copying or attempting to copy from another student's examination, permitting another student to copy from an examination or otherwise assisting another student during an examination, or any other violation of the examination's stated or commonly understood ground rules.
- Plagiarism: Any representation of the work of another as his or her own constitutes plagiarism. This includes copying or substantially restating the work of another person without the use of quotation marks or other indication that the words of another have been copied, the use of any written or oral work from which the student has obtained ideas or data without acknowledging that person's contribution.
- Submitting the same work in more than one course without the consent of all the instructors.
- Misrepresentation or falsification of data.

- Allowing another student to represent your work as his or her own.
- Violating the rules of an examination or assignment.

Charges of academic misconduct will be brought to the attention of the Associate Dean for Education, who will review all such cases and decide upon the appropriate action. A student who is found guilty of academic misconduct may be subject to disciplinary action, up to and including dismissal from the School.

The full academic misconduct policy is available at: www.bu.edu/bulletins/sph/item09.html.

GRADING STANDARDS, SATISFACTORY ACADEMIC PROGRESS, AND DISMISSAL

Grading Standards

All SPH degree candidates must earn a minimum 3.0 GPA each semester to be in good academic standing. All SPH degree candidates must have a minimum 3.0 GPA at SPH to graduate.

Please see the BUSPH Grading Policy at sph.bu.edu/registrar/policies for information on grade changes and incomplete grades.

MS students are required to achieve a minimum grade of B in each required core course (that is, in each course required in the common curriculum; BS723, EH710, EH717, EH725, EH768, EH804, and EP713. A student who fails to achieve a grade of B in one of these courses may attempt to improve the grade only in keeping with the BUSPH Policy on Grade Changes.

Satisfactory Academic Progress

Satisfactory academic progress will be assessed using the following School of Public Health guidelines: http://sph.bu.edu/images/stories/scfiles/registrar/grading_policy_updates_for_2013-2014.pdf. In addition, the EH MS/Doctoral/Post-Doctoral committee may assess a student's progress at any time, and may place the student on warning or probation if, in its opinion, it is determined that the student has not made adequate progress toward meeting graduation requirements.

A student on warning status will need to meet with the MS Program Director and develop a learning plan for the next two semesters. The student must also meet with the MS Program Director at least twice in the semester.

If a student is placed on probation, the MS Program Director will send the student a letter specifying the reason(s) for probation, what is required to be removed from probation, and the deadline by which the requirement(s) must be met. After the student has fulfilled the relevant requirement(s), he/she must write a letter to the MS Program Director that describes these steps. The MS Program Director will respond in writing with a determination of whether the student has met the requirements and is removed from probationary status, has not met the requirements and will remain on probation or refer the matter to the SAP Committee for further action.

Dismissal

A student who is on probation for not making adequate progress will be dismissed from the MS program if he/she does not demonstrate substantial progress during the specified probationary period, or does not meet the requirement(s) of probation by the deadline specified by the SAP Committee and/or the MS/Doctoral/Post-Doctoral committee.

Dismissal may also occur as a result of committing an act of academic dishonesty, as defined in the School's policy on Academic Dishonesty and is final.

REGISTRATION REQUIREMENTS

All Master of Science students at Boston University School of Public Health, regardless of citizenship or immigration status, must register each fall and spring semester during their MS program until they officially graduate.

Continuing Study

International students holding F-1 or J-1 non-immigrant status and who are in residence at Boston University must meet the requirements of their visa, in particular full-time enrollment. Full- time enrollment is achieved by registration for 12 or more credits of academic coursework, or by registration in Continuing Study with additional full-time certification ("Certified Full-time") coding by the SPH Registrar.

International students must check in at the Boston University International Students and Scholars Office (ISSO) when they first arrive at Boston University and then complete "Semester Verification" in each subsequent semester to ensure that they remain in lawful status. Students who are not full-time by virtue of academic course load (12 credits or more) or who are not certified full time by enrolling in continuing study will be considered in violation of their immigration status. Students who violate their status are subject to the penalties prescribed in relevant immigration laws.

Students who are permanent residents or United States citizens must meet the requirements of their program and must register for either coursework or Continuing Study each fall and spring semester.

Leaves of Absence

A student may request a leave of absence of up to two semesters by writing a letter to the MS Program Director and the BUSPH Registrar. Longer leaves of absence may be approved under compelling circumstances.

International students must have approval of ISSO to take a leave of absence and must work with ISSO when they are ready to return to their studies.

Students on leave of absence are not entitled to be advised officially by their faculty advisors during a leave of absence, nor do they have library privileges. It has been possible for students on leave to maintain their email accounts.

PROGRAM TIME LIMIT

The Boston University School of Public Health requires all MS students to complete their degree requirements within 5 years of matriculation. Most students, including part-time students, should be able to finish in less time. Any extensions of the overall time limit must be requested in writing to the MS Program Director with documentation of the extraordinary circumstances creating the delay and a date by which the requirements will be met. The request must be reviewed and approved by the EH MS/Doctoral/Post-Doctoral committee. A student who does not meet the time limits established by the program may be dismissed from the program without a degree.

COURSE WAIVERS AND TRANSFER CREDIT

Some SPH students enter their degree program having completed previous coursework that might help them meet degree requirements. Other students may have the opportunity to explore coursework at other approved universities. Be careful that you do not register and pay for a course that will not be accepted towards your SPH degree program requirements. The course waiver and transfer credit policy is available at sph.bu.edu/registrar/policies. Courses at other universities that have already been approved for transfer credit are available at sph.bu.edu/preapproved.

RESEARCH/INTERNSHIP PROPOSAL, PRESENTATION, AND SUBMISSION OF WORK

Internship/Research

Students must submit a proposal of their integrative experience to their Integrative Experience advisor when they reach 24 credits and prior to initiation of the research. For full-time students, this is sometime during their second semester.

Oral Presentation

Students must present their final integrative experience paper during a department seminar prior to the deadline established by the Master of Science Graduation Calendar for final paper submission.

Submission of Master of Science Final Paper

Conferment of the Master of Science degree is contingent upon receipt of the final paper draft by the deadlines established by the Master of Science Graduation Calendar.

THE OFFICIAL MS STUDENT RECORD

The Official MS Student Record is an extremely important set of documents that demonstrate the progress of the student through the master of science program. All students will be responsible for understanding the contents of their own file and familiarizing themselves with the rules outlined below.

The Official MS Student Record is available for inspection by the student and members of the EH MS/Doctoral/Post-Doctoral committee. Initially, the file contains the student's name, the date of entry into the program, and the name of the assigned academic advisor. With a few exceptions, described below, it is the student's responsibility to make additions to the Official MS Student Record and guarantee that the MS Program Director has received the appropriate information. Additions may be made in person or by mail, fax, or email.

Student Responsibilities

Students must submit the following information and materials to the Department Curriculum Coordinator for their Official MS Student Record:

- notification of the academic advisor for the Integrative Experience and the second reader
- a copy of the research proposal and revisions;
- a copy of the abstract for the Integrative Experience presentation
- a copy (electronic and paper) of the final paper;

MS Program Director Responsibilities

The MS Program Director maintains the following materials in all Official MS Student Records:

- Written approval by the student's Integrative Experience advisor of the proposed research project;
- First and second reader signature on final paper indicating the approval of the final paper and oral presentation; and
- Any correspondence pertaining to potential or actual disapproval of the Integrative Experience.

INTERNATIONAL STUDENTS

International Students and Scholars Office (ISSO)

The ISSO provides professional expertise on immigration and employment issues to students, faculty, and staff at Boston University.

ISSO Office Hours
Monday, Tuesday, Thursday, and Friday: 9:00AM - 5:00PM
Wednesday: 12:00PM - 5:00PM (Closed every Wednesday morning until 12:00PM.)

Contact Information:
888 Commonwealth Avenue, 2nd Floor
Boston, MA 02215
Phone: (617) 353-3565
Fax: (617) 358-1170
Email: isso@bu.edu

The School of Public Health's ISSO liaison is Elizabeth Mirarchi (mirarchi@bu.edu).

Students who have any questions regarding their required registration or necessary documents for travel or study should contact the ISSO.

Maintaining Visa Status

To remain lawfully in the United States during their studies, international students must obey the laws regulating F-1 and J-1 visa status. These regulations include, but are not limited to, registering for a fulltime course of study (whether by taking 12 or more credits or via registering for Continuing Study during all fall and spring semesters), limiting travel outside the U.S. to no more than 5 months at a time, and maintaining a current and valid I-20. For a complete discussion of these requirements, please visit the ISSO website at the following URLs:

Students on an F-1 visa: bu.edu/isso/students/current/f1/
Students on a J-1 visa: bu.edu/isso/students/current/j1/

Completing the Integrative Experience

Regardless of when they participate in graduation ceremonies, international students officially complete their MS studies when they submit the final completed integrative experience paper and when Boston University certifies that they have successfully completed all degree requirements. Please note that all students who will complete and submit their final paper during the summer must be registered as continuing students during the summer semester to maintain lawful F-1 status. Otherwise, students must register in every fall and spring semester.

Section 6 Student Resources & the BUSPH Community

WRITING ASSISTANCE PROGRAM

Peer writing assistance is available free of charge for MS degree candidates who wish to improve their public health writing. Writing assistance, which is designed to assist all levels of writers, is provided for all courses that have a writing component. Students bring 2 printed copies of the latest draft of the writing assignment and 2 printed copies of the assignment description to the appointment. Students may have up to two writing appointments per assignment and no more than 14 appointments per semester. Writing assistance is not provided for MS integrative experience.

Contact the Tutor Coordinator at sphtutor@bu.edu for more information or to schedule an appointment.

DISABILITY SERVICES

Students requiring disability services or accommodations are encouraged to meet with Mary Murphy-Phillips, Director of Student and Educational Services, who is the BUSPH liaison to the Boston University Office of Disability Services. Mary may be reached at mcmurph@bu.edu, 617-638-5059, or in her office on Talbot 2 Center. Students may also refer to the Student Handbook (sph.bu.edu/studenthandbook) and to the Office of Disability Services website (bu.edu/disability) for more information.

STUDENT HEALTH AND BEHAVIORAL MEDICINE

BUSPH students have several options for health and medical care, as outlined in the School of Public Health Student Handbook (sph.bu.edu/studenthandbook). Students should always refer to their insurance brochure and policy for coverage options, benefits and any restrictions.

IN AN EMERGENCY GO TO THE CLOSEST HOSPITAL EMERGENCY ROOM.

COMMUNICATIONS

All official communications from BUSPH will be sent to your BU email so please be sure to activate a BU email account as soon as possible after you accept admission to the program. You may elect to have this email forwarded to an alternative email account if you wish. You should regularly check and clean out your BU email so that the mailbox has sufficient space to accept messages.

There are several ways to stay in touch with faculty and other students and to be informed about events and opportunities in the EH concentration.

- **EH Listserv:** You should receive a message in the first week of the semester with upcoming events. If you do not, please contact the Department Curriculum Coordinator, Carolyn Weber (carolyn5@bu.edu) to be added to the EH MS listserv.

- **Yammer:** Join the Environmental Health Concentrators Group and stay informed about EH events, opportunities, and news.
- **The EH website**: sph.bu.edu/eh

There are several ways to stay in touch with faculty and other students and to be informed about events and opportunities at BUSPH.

- **The SPH website**: sph.bu.edu
- **Student Insider**: BUSPH's online student newsletter: sph.bu.edu/studentinsider. You'll also receive emails announcing information on the Student Insider from Please be sure to add sphstdnt@bu.edu to your safe senders list.
- **The Student Handbook**: sph.bu.edu/studenthandbook and also available in Student Services, Talbot 209 Center.
- **BUSPH Bulletin**: bu.edu/academics/sph

EVENTS

Each month, BUSPH hosts several events designed to get students involved in the community and socialize with your fellow students. These opportunities include:

- **5 pm Socials**: Free food held in Chequer's in the L-building basement 3-4 times per semester.
- **Student Meetings with the Dean**: Open discussions and free food for students to discuss issues they find important with the Dean of BUSPH, Robert Meenan.
- **Watch for other events on the Student Insider!**

STUDENT ORGANIZATIONS AND ADVOCACY

Every year, BUSPH student organizations plan, promote, and run a full schedule of symposia, lectures, and programs that draw attention to critical public health and human rights issues. Getting involved in student organizations allows you the opportunity to meet people who share your interests, explore public health, and get to know the community; for information on how you can participate, please check out the Student Organizations section of the BUSPH website: sph.bu.edu/StudentOrganizations.

BUSPH Student Senate

The Student Senate is the central student government association at BUSPH. The mission of the student senate is to enhance student life and advocate for the student body.

Academy Health

Academy Health is the professional home for health services researchers, policy analysts, and practitioners, and a leading, non-partisan resource for the best in health research and policy.

BU Biostatistics Student Association (BUBSA)

The purpose of the BUBSA is to foster an environment where its members can meet and debate current issues in the field of Biostatistics. This group strives for the promotion of ideas in Biostatistics, as well as networking with like-minded individuals within Biostatistics and related fields.

Health & Human Rights Caucus (HHRC)

Students in the HHRC work together to identify, discuss, and help raise awareness of human rights issues in our community and world.

IMPACT Project

An academic year-long transdisciplinary service-learning opportunity for graduate and professional students, designed to build bridges across traditional divisions between academic and community realities through direct contact with Dotwell Civic Health Institute and Dorchester communities.

International Student Organization

ISO celebrates diversity at BUSPH. Our main objectives are to help students adjust to life at BU, enable them to build professional relation-ships between one another, and share the cultural richness of the public health experience. All students (foreign and US) are welcome to join.

Medicine and Public Health Student Association (MPHSA)

The Medicine and Public Health Student Association brings together students from both the School of Public Health and the School of Medicine at Boston University. The group aims to encourage and enhance the exposure of BU's medical students to shared public health issues, efforts, and goals – and vice-versa.

The Movement: An Online Student Journal

The Movement was founded in spring 2009 by students in the School of Public Health who wanted to feature global health-related work, both written and in practice, done by students at BUSPH. *The Movement* can be found at bu.edu/themovement.

Pathfinder Student Seminar Series

The ***Pathfinder Student Seminar Series*** provides current students on the BU Medical Campus with a forum to present individual projects, research or scholarship that are of relevance to public health. It is hoped that through these presentations, students from the different disciplines will be encouraged to interact and collaborate with each other for the greater good of the community in an increasingly complex public health environment.

Public Health Alliance for Minorities (PHAM)

PHAM is a collective of BUSPH students committed to increasing the awareness of minority issues by fostering relationships with faculty, alumni, and community health organizations and creating a social support and career network for BUSPH's underrepresented students and alumni.

BUSPH Rotaract

The BUSPH Rotaract Club is comprised of men and women who pursue service-oriented activities through a framework of friendship and service, and work under the guidance and assistance of our local Rotary Chapter - Rotary Club of Boston.

Students for Quality Health Care (SQHC)

Students for Quality Health Care, A BUSPH student organization with an interest in understanding the role of quality control and improvement in health care, seeks to provide opportunities to gain hands-on experience with quality improvement projects; facilitate exposure to local research initiatives and practicum opportunities; and connect the School of Public Health to the BU Institute for Healthcare Improvement (IHI) chapter (ihi.org.IHI/Programs.IHIOpenSchool) which is similarly involved in health care quality projects.

Undergraduate Public Health Association

The BU Undergraduate Public Health Association provides a community for undergraduates interested in public health from varying backgrounds to discuss public health issues of interest; helps undergraduates navigate the wealth of public health-related academic options at BU, from the Geneva internship program at the World Health Organization to the 5-year BS/MPH program; hosts public health lectures and discussions, and links students with the numerous public health events in and around Boston; and acts as liaison for students interested in public health to gain hands-on experience with other student groups such as Peer Health Exchange and Project HEALTH and non-profits in Boston such as Our Bodies Ourselves and DotWell.

Section 7 Faculty

The Environmental Health Department Master of Science faculty members are committed to their role of teacher and mentor inside and beyond the classroom. Their research brings depth and a real-life context to the classroom. Bios for the full- and part-time faculty can be found under the Faculty & Staff tab at sph.bu.edu.

Name	Title	Email
Boden, Les	Professor	lboden@bu.edu
Fabian, Patricia	Research Assistant Professor	pfabian@bu.edu
Fidler, Anne	Associate Professor	afidler@bu.edu
Heiger-Bernays, Wendy	Associate Professor	whb@bu.edu
Patricia Janulewicz	Assistant Professor	paj@bu.edu
Levy, Jonathan	Professor & Associate Chair	jonlevy@bu.edu
MacVarish, Kathleen	Clinical Assistant Professor	kmacvar@bu.edu
McClean, Michael	Associate Professor	mmcclean@bu.edu
Ozonoff, David	Professor	dozonoff@bu.edu
Peters, Junenette	Assistant Professor	petersj@bu.edu
Sagiv, Sharon	Research Assistant Professor	sagiv@bu.edu
Scammell, Madeleine	Assistant Professor	mls@bu.edu
Schlezinger, Jennifer	Associate Professor	jschezi@bu.edu
Sherr, Dave	Professor	dsherr@bu.edu
Sullivan, Kimberly	Research Assistant Professor	tty@bu.edu
van Seventer, Jean	Associate Professor	jvsevent@bu.edu
Webster, Tom	Professor	twebster@bu.edu
White, Roberta	Professor & Chair	rwhite@bu.edu

Adjunct Teaching Faculty

In addition to the faculty based at the School, BUSPH employs a number of experienced public health professionals from the community as adjunct faculty. These adjunct faculty members bring a wealth of information to the classroom as well as help build bridges between the communities that surround the Boston University Medical Campus.

Name	Affiliation	Email
Rachel Grashow	Harvard School of Public Health	rgrashow@hsph.harvard.edu
Laura Orlando	RILES	orlando@riles.org
Donna Vorhees	Science Collaborative	dvorhees@bu.edu

Appendix A

Electives & Sample Programs of Study

In addition to the courses listed below, students may also take courses from other tracks as elective courses.

Suggested Elective Courses

Elective Courses		Cr	Semesters
SPH EH961	Directed Study in Immunotoxicology, Neurotoxicology, or Advanced Risk Assessment	4	Fall/Spring
SPH EH962	Directed Research in Immunotoxicology, Neurotoxicology, or Advanced Risk Assessment	4	Fall/Spring
SPH BS720	Introduction to R: Software for Statistical Comp.	2	Fall, Spring & Summer
SPH BS853	Generalized Linear Models with Applications	4	Spring
SPH EP752	Cancer Epidemiology	4	Fall
SPH EP755	Infectious Disease Epidemiology	4	Spring
SPH EP759	Reproductive Epidemiology	4	Spring
SPH EP855	Advanced Epidemiology Seminar: Issues in Study Design	4	Alt. Springs (odd years)
SPH EP856	Selected Topics in Epidemiologic Methods	4	Alt. Springs (even years)
GMS BI751	Biochemistry and Cell Biology	6	Fall
GMS BN798	Functional Neuroanatomy in Neuropsychology	4	Fall
GMS BN821	Seminar in Neuroimaging	2	Var.
GMS MI713	Comprehensive Immunology	4	Fall
GMS MI715	Immunological Basis of Disease	Var.	Spring
GRS MA751	Advanced Statistical Methods II	4	Spring

Sample Course Schedules for MS Students Who Have Taken Biostatistics Previously

Focus: Environmental Epidemiology

Year 1		
Fall	**Spring**	**Summer**
EH717 Foundations of EH	EH768 Intro to Toxicology	Directed Research/
EH725 Analytical Methods in EH	EH804 Exposure Assessment	Integrative Experience
EH710 Physiologic Principles for PH	EP813 Intermediate Epidemiology	
EP713 Intro to Epidemiology	Elective, Directed Research	
BS723 Intro to Statistical Computing		
Year 2		
EH757 Environmental Epidemiology		
EP854 Advanced Epidemiology		
BS852 Statistical Methods in EP		
Elective, Directed Research		

Focus: Urban and Community Health

Year 1		
Fall	**Spring**	**Summer**
EH717 Foundations of EH	EH768 Intro to Toxicology	Directed Research/
EH725 Analytical Methods in EH	EH804 Exposure Assessment	Integrative Experience
EH710 Physiologic Principles for PH	EH800 Community-Based Methods in EH	
EP713 Intro to Epidemiology	SB818 Qualitative Research Methods	
BS723 Intro to Statistical Computing		
Year 2		
BS852 Statistical Methods in EP – or- BS805 Interm. Stat Computing		
EH757 Environmental Epidemiology		
EH811 GIS		
Elective, Directed Research		

Focus: Toxicology

Year 1		
Fall	**Spring**	**Summer**
EH717 Foundations of EH	BS805 Interm. Stat Computing	Directed Research/
EH725 Analytical Methods in EH	EH768 Intro to Toxicology	Integrative Experience
EH710 Physiologic Principles for PH	EH804 Exposure Assessment	
EP713 Intro to Epidemiology	EH866 Risk Assessment Methods	
BS723 Intro to Statistical Computing		
Year 2		

EH840 Intermediate Toxicology
Electives, Directed Research

Focus: Exposure and Risk Assessment

Year 1		
Fall	**Spring**	**Summer**
EH717 Foundations of EH	BS805 Interm. Stat Computing	Directed Research/
EH725 Analytical Methods in EH	EH768 Intro to Toxicology	Integrative Experience
EH710 Physiologic Principles for PH	EH804 Exposure Assessment Methods	
EP713 Intro to Epidemiology	EH866 Risk Assessment	
BS723 Intro to Statistical Computing		
Year 2		
EH811 GIS		
EH840 Intermediate Toxicology		
BS857 Analysis of Correlated Data		
Elective, Directed Research		

Sample Course Schedules for MS Students Who Have NOT Taken Biostatistics Previously

Focus: Environmental Epidemiology

Year 1		
Fall	**Spring**	**Summer**
BS704 Intro to Biostatistics	BS723 Intro to Statistical Computing	Directed Research/
EH717 Foundations of EH	EH768 Intro to Toxicology	Integrative Experience
EH725 Analytical Methods in EH	EH804 Exposure Assessment	
EH710 Physiologic Principles for PH		
EP713 Intro to Epidemiology	EP813 Intermediate Epidemiology	
Year 2		
EH757 Environmental Epidemiology		
EP854 Advanced Epidemiology		
BS852 Statistical Methods in EP		
Elective, Directed Research		

Focus: Urban and Community Health

Year 1		
Fall	**Spring**	**Summer**
BS704 Intro to Biostatistics	BS723 Intro to Statistical Computing	Directed Research/
EH717 Foundations of EH	EH768 Intro to Toxicology	Integrative Experience
EH725 Analytical Methods in EH	EH804 Exposure Assessment	
EH710 Physiologic Principles for PH	EH800 Community-Based Methods	

in EH
EP713 Intro to Epidemiology
Year 2
EH757 Environmental Epidemiology
EH811 GIS
SB818 Qualitative Research Methods
Elective, Directed Research

Focus: Toxicology

Year 1		
Fall	**Spring**	**Summer**
BS704 Intro to Biostatistics	BS723 Intro to Statistical Computing	Directed Research/
EH717 Foundations of EH	EH768 Intro to Toxicology	Integrative Experience
EH725 Analytical Methods in EH	EH804 Exposure Assessment	
EH710 Physiologic Principles for PH	EH866 Risk Assessment Methods	
EP713 Intro to Epidemiology		
Year 2		
BS805 Interm. Stat Computing		
EH840 Intermediate Toxicology		
Elective, Directed Research		

Focus: Exposure and Risk Assessment

Year 1		
Fall	**Spring**	**Summer**
BS704 Intro to Biostatistics	BS723 Intro to Statistical Computing	Directed Research/
EH717 Foundations of EH	EH768 Intro to Toxicology	Integrative Experience
EH725 Analytical Methods in EH	EH804 Exposure Assessment	
EH710 Physiologic Principles for PH	EH866 Risk Assessment Methods	
EP713 Intro to Epidemiology		
Year 2		
BS805 Interm. Stat Computing		
EH811 GIS		
EH840 Intermediate Toxicology		
Elective, Directed Research		

Appendix B

Integrative Experience Abstract Submission Form

Master of Science Integrative Experience
Abstract Submission Form

This form must be submitted to the **MS Program Director Jennifer Schlezinger, 715 Albany Street, R Building, Room R408 and the Department Curriculum Coordinator**, accompanied by one copy of the final Integrative Experience abstract, at least **30 days** in advance of the Integrative Experience presentation. **Prior to submission, the abstract must have been read and approved by your Integrative Experience advisor and second reader.** Please type or print clearly.

Name _____ BUID _____

Department _____ Degree _____

Integrative Experience Title _____

Location of IE Presentation _____

I plan to graduate in _____.

IE Advisor/First Reader: _____
Name Department/Affiliation

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Name Department/Affiliation

Approval and Signatures

The undersigned verify that the enclosed thesis abstract has been approved for publication and submission to the Office of the Registrar and the MS Program Director. Any subsequent revisions to this abstract will require the immediate resubmission of these documents to the Office of the Registrar and the MS Program Director.

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