Master's Guidelines

MPH and MS Programs in Epidemiology

Department of Epidemiology

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Dear Master’s students,

Welcome to the Department of Epidemiology! We are delighted to welcome the current cohort of trainees, and are deeply committed to assuring that each one of you has an optimal educational experience in the Department of Epidemiology.

Our Master’s degree offerings are designed to prepare students for careers in a wide array of public health research and service settings. Our students are provided the skills to design, conduct, interpret and apply research into the causes, prevention, and control of human disease towards the ultimate goal of improving the public’s health. The curriculum emphasizes mastery of methods of epidemiological research and is enriched by additional courses on a wide range of important injury and disease outcomes, such as AIDS, tuberculosis, and cancer, and on factors that may be important in disease causation, such as genetics, nutrition, and influence of the social and physical environment.

A quick overview of the information presented in this guide:

- **Section I** we list the four Master’s degree offerings in the Department of Epidemiology, with brief descriptions of each. These descriptions reference specific components of the overall Master’s program, including coursework, certificate, practicum, and thesis.

- **Section II** we describe components of the Master’s program, and include a snapshot of how these program components correspond to each of the four degree offerings. Section II provides a listing of the 21 certificate programs open to Epidemiology students, with links to the corresponding webpages that describe course requirements for Epidemiology students. We also provide full copies of the 7 certificates that are housed within the Department of Epidemiology, as well as additional certificates that are particularly popular with Epidemiology students.

- **Section III** provides information about the key sources of support and advice for Master’s students and describes resources and activities designed to optimize your educational experience in the Department.

It is our sincere hope that these guidelines will enable you to have an optimal educational experience in the Department of Epidemiology. As such, we welcome and encourage any suggestions for their improvement.

My very best wishes,

**Anne Paxton, DrPH**
Associate Professor of Epidemiology and Population and Family Health at CUMC, Director, Master’s Program in Epidemiology
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Section I
Master’s degree offerings in the Department of Epidemiology

The Department of Epidemiology offers four Master’s degree programs:

1. Columbia Master of Public Health (MPH) in Epidemiology
2. Accelerated MPH in Epidemiology
3. Master of Science (MS) in Epidemiology
4. Executive MS in Epidemiology
The Columbia MPH Program in Epidemiology

**Completed in:** 2 years  
**Includes:** Certificate in one of 21+ school-wide programs

The Columbia MPH program offers an integrated interdisciplinary school-wide curriculum in which students select one of 21+ Certificates that provides a secondary area of expertise in addition to students’ departmental focus, in this case, Epidemiology. Students take the interdisciplinary core courses in the fall semester of their first year, and the bulk of the methods sequence (Epidemiology and Biostatistics) courses in the spring semester. With the exception of students undertaking the Global Health Certificate, most students will undertake a practicum during the summer between years one and two. Most of the certificate courses are taken in the second year, during which time the students will also write a Master’s thesis that brings together skills and approaches from the Epidemiology methods and content from the Certificate.

![Diagram of the program structure](image-url)
The Accelerated MPH in Epidemiology

Completed in: 1 year

The Accelerated MPH is designed for highly motivated professionals seeking to enhance their careers with a degree in public health. The curriculum is similar to the two year MPH but completed at a faster, more demanding pace and without a certificate. The curriculum provides the broad, systemic understanding, critical thinking skills, and leadership training needed to tackle today’s complex public health problems and work effectively with a variety of professional settings.

Candidates for the Accelerated MPH will have one of these qualifications:

- A doctoral degree (such as an MD, DDS, PhD, JD, DNSc, EdD, etc.)
- A nearly completed doctoral degree (within 24 months of completion)
- A Master’s degree (such as an MS, MA, MBA, MSN) and at least 5 years related work experience

Students take the integrated core courses and one substantive epidemiology course in the fall semester. In the spring semester students complete the ISP, take Leadership and Innovation, the methods sequence (with the exception of Epi III), and two additional substantive epidemiology courses. Epidemiology III will be completed in the first summer session. Students will undertake a practicum of at least 140 hours which can be completed as their schedule allows—either part time or full time during spring or summer following their fall matriculation in order to complete all degree requirements in one year. Accelerated students write an abstract and prepare a poster which will be displayed at Epi Master’s Student Day in October. The accelerated student is invited to be in attendance, but this is not a requirement. Given the time constraints of the degree, a Master’s thesis is not required. The degree is conferred in mid-October.
The MS in Epidemiology

Completed in: 2 years

The Master of Science (MS) in Epidemiology is a research degree, usually undertaken by individuals who hold another graduate or professional degree in a related discipline such as MD, DDS, DO, MSN, or PhD. The program is designed to provide trainees with a command of major concepts and techniques in epidemiology as well as a solid foundation in biostatistics. Students learn the skills necessary to develop testable hypotheses and design research projects, from clinical trials to broad population studies. Graduates of the program often go on to become independent researchers.

While the competencies achieved through the MS program are the same as those for students enrolled in the MPH program, MS students concentrate on research methodology specific to the discipline of epidemiology, are exempted from the practicum and have fewer required courses to take. MS students will complete a Master’s thesis.

The Executive MS in Epidemiology

Completed in: 20 months (one three-day weekend per month)

The Executive MS in Epidemiology (cuexecmepi.org) is designed to provide working professionals with the additional knowledge, skills, and credentials needed to advance in their current position or turn their career in a new direction. Executive MS students are highly motivated professionals who work in health departments, academic settings, pharmaceutical companies, hospitals, and other healthcare settings in the US and abroad. With a weekend class schedule, the program is tailored to accommodate the professional and family obligations of our students. Classes are held one long weekend (Friday-Sunday) per month for 20 months. Faculty advisors are available on the weekends that classes meet, and by phone or email throughout the month.

Like our standard MS, the Executive MS provides trainees with a command of major concepts and techniques in epidemiology as well as a solid foundation in biostatistics. Students will learn the skills necessary to develop testable hypotheses and design research projects, from clinical trials to broad population studies. Executive MS students are exempt from the practicum requirement, but they will complete a Master’s thesis.

Executive MS students enroll in a compressed, one semester thesis class (P9421) offered one full day per month (January–May) on the Friday of their monthly weekend of classes. Exec thesis class is composed of a combination of lecture and workshops with individualized help and is augmented by weekly virtual office hours. Short periodic meetings during the fall semester assist Exec students in locating a thesis reader, a data set, and with obtaining Columbia University human subjects (IRB) approval as needed so that they are ready for class in January. The final thesis product is formatted as a publishable paper suitable for journal submission in their respective field.

They are not required to attend departmental seminars, although students are welcome and strongly encouraged to attend as many seminars as possible over the two years.
Section II
The elements of the Master’s degree, explained

A snapshot of degree requirements

The table below provides a snapshot of the requirements for each degree, and the pages that follow provide more detail about each element depicted in the table.

<table>
<thead>
<tr>
<th>DEGREE</th>
<th>INTERDISCIPLINARY CORE</th>
<th>METHODS SEQUENCE</th>
<th>ADDITIONAL REQUIRED COURSES</th>
<th>THESIS</th>
<th>PRACTICUM</th>
<th>SEMINARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLUMBIA MPH</td>
<td>Yes</td>
<td>Yes</td>
<td>Certificate courses</td>
<td>Yes</td>
<td>Yes</td>
<td>18</td>
</tr>
<tr>
<td>ACCELERATED MPH</td>
<td>Yes</td>
<td>Yes</td>
<td>3 Substantive Epidemiology courses</td>
<td>No</td>
<td>Yes</td>
<td>10</td>
</tr>
<tr>
<td>MS</td>
<td>No, MS students take introductory epidemiology and biostatistics courses</td>
<td>Yes</td>
<td>2 Substantive Epidemiology courses and 1 elective</td>
<td>Yes</td>
<td>No</td>
<td>18</td>
</tr>
<tr>
<td>EXECUTIVE MS</td>
<td>No, MS students take introductory epidemiology and biostatistics courses</td>
<td>Yes</td>
<td>3 Advanced methods courses</td>
<td>Yes</td>
<td>No</td>
<td>Encouraged but not required</td>
</tr>
</tbody>
</table>

A note about advising in the Department of Epidemiology

Incoming Epidemiology Master’s students are all assigned a faculty advisor. Students are strongly encouraged to set up an introductory meeting with their advisor in the first month of their first semester, and to follow up with additional meetings in the first semester or early in the second. Faculty advisors can help students articulate career goals that can be beneficial in focusing their interests for the practicum and thesis. The faculty advisor can be a resource in finding a practicum, a thesis reader, and/or a dataset related to the topic the student wants to address.
The interdisciplinary core

The interdisciplinary core includes courses taken during the fall semester of the first year that fall within six groupings called Studios. The six studios are Research Methods and Applications, Foundations of Public Health, Public Health Interventions, Global and Developmental Perspectives, Determinants of Health, and Health Systems.

Students are separated into small groups with a faculty member for a discussion-based course entitled Integration of Science and Practicum, which spans the entire first year.

Finally, students take, in their spring semester, a course on Leadership and Innovation.

The methods sequence

Completed in: 3 semesters

The methods sequence is a central feature of all the MPH and MS degrees offered by the Department of Epidemiology. For Epidemiology students, most of the methods sequence is taken in the spring semester of year one, although students take Epidemiology III in the fall of the second year or the summer between years one and two.

The methods sequence consists of a series of essential epidemiology and biostatistics methodology courses that provide an increasingly honed understanding of the tools and skills required to function as an epidemiologist.

The methods sequence includes the courses listed below:

- P6031 Research Methods and Applications in the integrated core (MPH students)
  OR — P6400 Epi I: Principles of Epidemiology (MS and Executive MS students)
- P6031 Research Methods and Applications in the integrated core (MPH students)
  OR — P6103 Biostats I: Introduction to Biostatistics (MS and Executive MS students)
- P8438 Epi II: Design and Conduct of Observational Epidemiology
- P8400 Epi III: Applied Epidemiologic Analysis
- P8120 Analysis of Categorical Data
- P8483 Applications of Epidemiologic Research Methods I

Recommended:

- P8100 Applied Regression
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Additional course requirements

Master’s students in each degree program have additional course requirements beyond the methods sequence.

- Students enrolled in the Columbia MPH are also working toward a certificate. Each certificate has its own set of required courses and students must follow the certificate guidelines to know which courses are required. Certificate course information is provided later in these Guidelines.

- Students in the Accelerated MPH take three substantive epidemiology courses chosen from the list below.

- Students in the standard MS program take two substantive epidemiology courses and an elective course from any department across the Mailman School. All substantive courses offered within the Department of Epidemiology are listed on the following page.

- Students in the Executive MS program take three advanced methods courses in addition to the standard methods sequence:
  - P8100 Applied Regression
  - P8485 Presentation and Visualization of Epidemiological Data
  - P9400 Critical Thinking in Epidemiology
Substantive Courses
The substantive epidemiology courses listed below are available for students to take as electives or, in some cases, as required courses (for particular certificates). The courses focus on the epidemiology of specific diseases or issues in or aspects of epidemiology. For course descriptions, please visit: mailman.columbia.edu/people/current-students/academics/course-directory

- P8301 Gene Environment Interactions in Human Development [EHS]
- P8307 Molecular Epidemiology [taught through the EHS Department]
- P8401 Pharmaco-epidemiology
- P8403 Nutritional Epidemiology
- P8404 Epidemiology and Genetics of Aging
- P8405 Genetics in Epidemiology
- P8406 Infectious Disease Epidemiology
- P8407 Epidemiology of Aging
- P8410 Reading Seminar for Psychiatric Epidemiology I
- P8414 Cancer Epidemiology
- P8415 Chronic Disease Epidemiology
- P8417 Selected Problems in Measurement
- P8418 Stress and Health
- P8419 Neurobiology and Genetics of Psychiatric Disorders
- P8421 Clinical Psychiatry for Epidemiology and Public Health
- P8422 Perinatal Epidemiology
- P8430 Public Health Surveillance
- P8432 Environmental Epidemiology
- P8440 Epidemiology of Cardiovascular Diseases
- P8441 Global Chronic Cardiovascular Disease Prevention
- P8442 Epidemiology and Control of Tuberculosis
- P8445 Current and Emerging Issues in Injury and Violence
- P8448 Methods in Injury Epidemiology and Prevention
- P8450 Clinical Epidemiology
- P8453 Lifecourse Epidemiology II
- P8465 Epidemiology of HIV and AIDS
- P8469 Epidemiology of Malaria
- P8470 Epidemiology of Alcohol and Drug Problems
- P8471 Social Epidemiology
- P8475 Topics in Emerging Infectious Diseases
- P8477 Epidemic Modeling for Infectious Disease Epidemiology
- P8486 Applying Epidemiologic Methods to CAM
- P8488 Epidemiologic Research Topics in Developing Countries
- P8489 Epidemiology of the Mental Health Impact of Trauma, Violence, and Loss in the Global South
- P8493 Lifecourse Epidemiology
- P8499 Field Methods in Epidemiology
- P8679 Investigative Methods in Humanitarian Emergencies [Population and Family Health]
- P8825 Global Chronic Disease
- P9415 Epidemiology of Drug Abuse in a Community Sample
- P9493 Topics in the Epidemiology of Neurological Disorders
Certificate programs

Every student in the two-year Columbia MPH program enrolls in a certificate program which provides training in a focused area of expertise—in addition to the student’s departmental discipline—and leads to a Columbia University approved credential. The certificate programs have been developed in consultation with public health employers and other key stakeholders and reflect today’s most sought-after skills and knowledge.

Detailed information on all certificate programs is available online. Students taking the Columbia MPH within the Department of Epidemiology are able to select a certificate from 21 school-wide certificate programs listed below.

<table>
<thead>
<tr>
<th>Certificate Program</th>
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<tbody>
<tr>
<td>Advanced Epidemiology</td>
</tr>
<tr>
<td>Applied Biostatistics</td>
</tr>
<tr>
<td>Child, Youth, and Family Health</td>
</tr>
<tr>
<td>Climate and Health</td>
</tr>
<tr>
<td>Comparative Effectiveness Outcomes Research</td>
</tr>
<tr>
<td>Environmental Health Policy</td>
</tr>
<tr>
<td>Epidemiology of Chronic Disease</td>
</tr>
<tr>
<td>Global Health</td>
</tr>
<tr>
<td>Health and Human Rights</td>
</tr>
<tr>
<td>Health of an Aging Society</td>
</tr>
<tr>
<td>Health Policy Analysis</td>
</tr>
<tr>
<td>Health Policy and Practice</td>
</tr>
<tr>
<td>History, Ethics, and Law</td>
</tr>
<tr>
<td>Infectious Disease Epidemiology</td>
</tr>
<tr>
<td>Injury Prevention and Control</td>
</tr>
<tr>
<td>Molecular Epidemiology</td>
</tr>
<tr>
<td>Public Health and Humanitarian Assistance</td>
</tr>
<tr>
<td>Public Health Informatics</td>
</tr>
<tr>
<td>Public Health Research Methods</td>
</tr>
<tr>
<td>Sexuality, Sexual, and Reproductive Health</td>
</tr>
<tr>
<td>Social Determinants of Health</td>
</tr>
</tbody>
</table>

Examples of course requirements for seven certificates can be found in Appendix 2.
The practicum

MPH students in the Department of Epidemiology undertake an epidemiologically-relevant practicum (mailman.columbia.edu/people/current-students/academics/practicum/epidemiology-practicum) in a public health setting where they receive a hands-on mentored experience. Students choose between practicum opportunities in New York City, in institutions throughout the United States, as well as in settings overseas. Although most two year MPH students enrolled in a certificate program select a practicum related to their certificate area, this is not required.

The standard epidemiology practicum is the equivalent of two months of full-time work (at least 280 hours). Accelerated and dual degree students undertake a practicum that is a minimum of 140 hours. The majority of students undertake their practicum during the summer between their first and second years, although there are exceptions. Epidemiology MPH students in the Global Health Certificate are required to undertake a six-month practicum in an overseas setting, usually from July through December.

The objective of the practicum experience is to provide an opportunity for students to practice and extend skills acquired through their course work and to develop epidemiology and general public health competencies. Although what constitutes an ideal epidemiology practicum varies by certificate and by a student’s long-term career goals, all epidemiology practica should provide the student with exposure to the epidemiology core competencies defined by the Association of Schools of Public Health (ASPH) (aspph.org/educate/models/mph-competency-model). The ASPH Epidemiology core competencies have been grouped, for the purposes of assessment of the suitability of the practicum, into two categories as listed below:

**Core Competencies - Category 1:**
During the practicum, the student should employ at least two of the following skills:

- Describe a public health problem in terms of magnitude, person, time, and place
- Utilize the basic terminology and definitions of epidemiology
- Calculate basic epidemiology measures
- Evaluate the strengths and limitations of epidemiologic reports
- Draw appropriate inferences from epidemiologic data

**Core Competencies - Category 2:**
During the practicum, the student should engage in activities that require them to perform at least two of the following:

- Recognize the importance of epidemiology for informing scientific, ethical, economic, and political discussion of health issues
- Identify key sources of data for epidemiologic purposes
- Communicate epidemiologic information to lay and professional audiences
- Comprehend basic ethical and legal principles pertaining to the collection, maintenance, use, and dissemination of epidemiologic data
- Recognize the strengths and limitations of public health screening programs
All MPH students, including accelerated and dual degree students, complete an abstract and poster (or PowerPoint presentation). Epidemiology MPH students who are on campus during the fall semester of the second year (not students in the Global Health Certificate program who will still be overseas) are required to complete an abstract of their practicum experience and participate in the Epidemiology Master’s Student Day by making an oral or poster presentation.

Epidemiology MPH students planning to undertake the standard two-month practicum are assisted through the practicum preparation process by Epidemiology faculty member and Practicum Director, Dr. Joyce Pressley. In the fall semester, all students complete certifications in CITI Human Subjects Protection and the Health Insurance Portability and Accountability Act (HIPAA). MPH students also complete a practicum advising survey and attend the Epidemiology practicum seminar series. The seminar series prepares the students for the practicum by introducing them to the overall process, placement options, search strategies and tips for preparing a competitive application and for optimizing their practicum performance. Seminars also address compliance with Columbia University’s policies governing student research with human subjects (see Appendix 3). The Global Health Certificate students have their own pre-practicum seminars led by Dr. Anne Paxton in the spring semester of year one. Additional practicum seminars are organized and led by the school on select topics.

There are several processes in place to help students identify a practicum that best suits their professional interests. Students locate practicum opportunities through a variety of sources such as the departmental practicum office, attending Epidemiology Master’s Student Day in October, school-wide practicum opportunities, Office of Career Services announcements, and through their own initiatives. At Epidemiology Master’s Student Day, students listen to talks, view posters, and speak firsthand with approximately 120 second year epidemiology students who have just completed their practicum experience. After identifying an organization with which to work, and prior to beginning the practicum, students should work with their supervisor at the organization to map out the scope of activities in sufficient detail for assessment of whether the practicum involves the need for institutional review board (IRB) review. It is the student’s responsibility to obtain sufficient information from the practicum site to address questions relating to IRB requirements. This should be done in advance so that there is time for an IRB submission should one be needed. The practicum director may instruct the student to submit an IRB pre-screen or a full IRB protocol. In such cases, it is the student’s responsibility to submit the IRB pre-screen or to write the IRB protocol. The practicum cannot begin and the student cannot accrue practicum hours toward this graduation requirement until IRB clearance has been obtained. Upon practicum completion, the student and mentor complete practicum evaluations. Faculty-level practicum advising is available beginning in the fall semester and continuing as needed through completion of the practicum. The practicum can lead students to a thesis topic and dataset, although it is not required that it do so.
Master’s thesis

The Master’s thesis in Epidemiology is the culmination of the student’s educational experience at Mailman. The thesis is a mentored research and writing project where students work one-on-one with a faculty member of their choice analyzing epidemiology data and writing a paper in the form of a peer-review journal article. The thesis is begun in the fall of the second year and completed by mid-April of the spring semester prior to graduation.

Engaging a thesis reader early is crucial to a successful thesis experience. First readers must be Epidemiology faculty members. The thesis reader will provide content expertise and assist the student in identifying gaps in the literature, formulating a scientifically important research question and selecting a dataset appropriate for exploring the thesis question. First year students are encouraged to begin thinking about what topic they would like to research for their thesis. Resources available to them to find a thesis reader include their faculty advisor and instructors of their respective thesis course (Dr. Larkin McReynolds for P9419 and Dr. Joyce Pressley for P9420). Students use a variety of resources to locate an appropriate dataset to answer the public health question they pose in their thesis: first readers, thesis course instructors, academic advisors, practicum mentors, or their certificate lead. Students are encouraged to have a dataset in hand and an agreement with an Epidemiology faculty member that they will be their thesis reader by the beginning of the fall semester of year two. Students have the option of a second reader who is frequently someone associated with the practicum or the thesis data. The second reader can be any researcher with a doctoral degree, either from the Columbia community or from outside the institution. The second reader provides additional support and confers with the first reader on the thesis grade. The thesis class, first reader, and second reader (if applicable) jointly determine the thesis grade.

The thesis data set should be from an epidemiologic study large enough to utilize multivariable statistical methods to which the student was exposed during their training. Students often use faculty members’ datasets, publicly available datasets, or data from a practicum site if it is suitable for thesis work, although the thesis and practicum do not have to be linked. Columbia University policy on research by students requires that all theses involving human subjects research be submitted for IRB review prior to beginning data analysis.

Students register for a year long, three-credit course (for administrative purposes split into P9419 in the fall and P9420 in the spring) with the grade conferred by the faculty reader and thesis class. Students registered for P9419 will be oriented to the thesis project and provided with detailed instruction on the elements of the thesis and resources available to them throughout the year. Students will find resources on these topics on the courseworks sites for their respective thesis course. Students receive extensive support in all aspects of the thesis from review of the literature to data analysis and thesis writing from the thesis class, online electronic help topics, workshops, and office hours.
SECTION II  THE ELEMENTS OF THE MASTER’S DEGREE, EXPLAINED

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Department sponsored seminars, grand rounds, and symposia

Students are encouraged to attend as many departmental, CUEGR and cluster seminars as possible to obtain a broad understanding of current topics and debates in epidemiology today.

Attendance at a specific number of department seminars or CUEGRS is required for each degree (for example, 18 over a two year period for the Columbia MPH) as outlined in the table on page 7.

- **Department Seminars** are held monthly and showcase the research and work being done by faculty and students in the Department. Seminars are held on Fridays from 12:00-1:00 p.m. in Hess Commons unless otherwise indicated.

- The **Columbia University Epidemiology Grand Rounds (CUEGRs)** is a monthly lecture series hosting global leaders in epidemiology who share their ground-breaking work with the Department’s faculty and students, as well as with the Columbia community at-large. CUEGR lectures present a broad range of topics and foster academic exchange around key issues in epidemiology. In addition, the series helps forge important links between the Department and leading figures and programs in epidemiology throughout the world. All events, which are open to the public, consist of a 60-minute lecture followed by a 30-minute discussion period, in which audience members are encouraged to participate. Moreover, speakers are invited to spend the day at Columbia with ample time to engage faculty and students prior to the lecture. This intimate format maximizes the experience for both guests and Mailman School participants and can include visits with journal clubs and other groups on campus, lunch, etc. CUEGR lectures are held on Wednesday from 4:00-5:30 p.m. in the 8th Floor Auditorium, unless otherwise indicated.

- The Department of Epidemiology is organized into five clusters, each of which has regularly scheduled **Cluster Seminars** for faculty and students. The five clusters are Social Epidemiology, Injury Epidemiology, Psych-Neuro Epidemiology, Infectious Disease Epidemiology and Chronic Disease Epidemiology.

In addition to the regularly scheduled seminars, the Department sponsors several formal, full-day symposia each year. **Columbia University Epidemiology Scientific Symposia (CUESS)** bring the best minds in our field together for a full day of discussions on the most pressing health questions of our time. Students are strongly encouraged to take full advantage of the symposia. Students may also get credit by attending the Student Liaison Journal Clubs that are held monthly each semester.

Schedule information on all seminars and symposia is available on the Department of Epidemiology News & Events page (mailman.columbia.edu/become-student/departments/epidemiology/news-events) as well the Mailman School calendar web page (mailman.columbia.edu/public-health-now/events). In addition, all events are announced weekly and updated continuously on our Facebook page (facebook.com/cuepidemiology).
Questions, concerns, and department resources

In the Department of Epidemiology, the faculty and administrative leaders of the Master’s program are available to address the concerns of Master’s students, academic or otherwise.

**Ms. Liliane Zaretsky**  
Director of Academic Programs in Epidemiology  
Office: Room 728 on the 7th floor of the Allan Rosenfield Building  
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Email: lsm34@cumc.columbia.edu

**Additional resources outside of the department are listed below:**

**Office of Student Affairs (OSA)**  
The OSA assists students as they navigate their academic programs. From orientation to graduation, the office monitors academic progress, assists with registration-related questions, develops co-curricular programming to enhance student life, and assists students who encounter any academic or personal obstacles along the way. [mailman.columbia.edu/people/current-students/office-student-affairs](http://mailman.columbia.edu/people/current-students/office-student-affairs).

**The Office of Disability Services**  
The Department of Epidemiology works closely with the Office of Disability Services (ODS) to facilitate equal access for students, including coordination of reasonable accommodations and support services for students with disabilities. ODS works with students with all types of disabilities, including physical, learning, sensory,
psychological, AD/HD, and chronic medical conditions. ODS also provides assistance to students with temporary injuries and illnesses.

The Epidemiology Department is committed to a campus culture that is sensitive and responsive to the needs of students. The department wishes to enable students with disabilities to fully realize their potential, recognizing their abilities and independence while supporting reasonable accommodation, maintaining equal access and preserving their confidentiality, in line with the spirit and provisions of the amended Americans with Disabilities Act.

To register with the Office of Disability Services, students must complete a Graduate Application for Accommodations and Services and submit documentation of their disability. The application and guidelines for disability documentation are available online at health.columbia.edu/disability-services and at the ODS office. Students are encouraged to register with the Office of Disability Services at the time of their matriculation at Columbia University although they may do so later if appropriate. Review of requests for accommodation and disability documentation may take two to three weeks to complete. Students are eligible to receive reasonable accommodations only once the entire registration process is complete. For more information, please contact the Office of Disability Services at 212.854.2388 or disability@columbia.edu.

**Center for Student Wellness**

The Center for Student Wellness (CSW) works to promote health and enhance learning by addressing health-related barriers to academic success. The Center offers a wide range of services for students in the Health Sciences including counseling and mental health consultation and treatment. The CSW assures confidentiality and does not report the names of visitors to the office and will not act without permission, except in cases of imminent serious risk to individual safety, or if required by law. Located at 107 Bard Hall, the CSW is open Monday through Friday by appointment and also maintains walk-in hours. Services provided by the CSW are free to CUMC students. For more information, call them at 212.304.5564 (email student wellness@columbia.edu) or see their website at cumc.columbia.edu/student-health/center-student-wellness.

**Ombuds Office**

The Ombuds Office is another excellent source for thoughtful and confidential advice regarding difficult challenges that students may encounter, including academic concerns, bureaucratic run-arounds, and interpersonal conflicts. More information can be found at ombuds.columbia.edu.

**Student Services for Gender-based and Sexual Misconduct**

Student Services for Gender-based and Sexual Misconduct is designed to support students facing inappropriate behavior based on sex and/or gender discrimination that may or may not be sexual in nature. Their website contains information on resources, on policy and on how to get advice. It can be accessed at sexualrespect.columbia.edu and they can be contacted at 212.854.1717.

Please visit the the MSPH Student Handbook online for information on additional student resources (mailman-handbook.com/2014/node/6).
SECTION III RESOURCES AND SPECIAL ACTIVITIES FOR MASTER’S STUDENTS

The Writing Center
Effective written communication is a critical skill for public health researchers, practitioners, and leaders. Furthermore, the style of scientific writing that is the standard in the field of epidemiology can be very unfamiliar and often requires new skill development, even for students entering the program with strong writing skills.

All graduate and undergraduate students at Columbia University are eligible to access an excellent free writing resource, the Writing Center. Located on the Morningside campus, a short subway or a free shuttle ride away, the Center offers workshops and structured appointments in which writing consultants work one-on-one with students. They provide services tailored for graduate students of all disciplines (short papers, long papers, research papers, theses, dissertations, etc.) and also offer specific services to non-native English speakers/writers. You can learn more about the Writing Center at college.columbia.edu/core/uwp/writing-center.

The EPIC fund

The EPIC Fund was created using the revenue generated by the Epidemiology and Population Health Summer Institute at Columbia University (EPIC) and other Departmental gifts. It is a funding source for Department trainees pursuing research and training opportunities beyond those covered by their standard tuition. Potential uses for the EPIC fund include but are not limited to:

- travel for conferences; priority will be given to trainees who are presenting findings at professional meetings
- purchase of ebooks, datasets, or samples for a study
- tuition for specific training needs, such as short courses, workshops, and training in software packages or lab techniques
- research related items that will contribute to the trainees’ research (for example, data collection)

There are three EPIC funding cycles: applications will be accepted on January 30, May 30, and September 30 each year.

EPIC Fund detailed description
mailman.columbia.edu/sites/default/files/legacy/EPIC_Fund_description.pdf

EPIC Fund application
mailman.columbia.edu/sites/default/files/legacy/EPIC_Fund_application.pdf

Epidemiology department socials

The Department of Epidemiology sponsors a number of Socials each year to celebrate holidays, honor achievements, and to bring faculty, staff, and students together in a festive setting. Socials are excellent opportunities for students to mingle with faculty and engage in the life of the Department. Of particular interest is our Master’s Student Day held each fall, in which all second-year non-global Master’s students whose degree program requires a practicum make an oral or poster presentation on their practicum experiences.
School-wide Competencies for the Master’s Program

Upon satisfactory completion of the MPH degree, all graduates will be able to demonstrate a broad knowledge and skills base in the core areas of public health, with particular emphasis in a selected field of public health, and will be able to:

- Apply statistical methods of estimation and hypothesis testing and explain the applications of probability and inference, descriptive and inferential methodologies, and correlation and regression for the purpose of analyzing public health research data
- Analyze how environmental contaminants (chemical, physical, and other exposures) interact with biological systems and their effect on human populations for the purpose of evaluating risk reduction strategies
- Apply epidemiologic methods to the measurement of disease rates, prevention of infectious diseases, and the development and evaluation of health programs and policies
- Assess the impact on health policy options of social, political, technological, economic, and cultural forces and apply organizational management techniques to address organizational challenges to providing healthcare
- Examine public health issues and responses from a social and behavioral sciences perspective and explain social, cultural, political, economic, and behavioral determinants of disparities in health status among populations
- Explain the linkages between public health problems and other societal issues (public policy, environmental contexts, health disparities, reproductive health, population shifts, etc.)
- Analyze public health research studies in order to critique analytic methods, evaluation reports, policy papers, and other professional documents to identify strengths, weaknesses and potential impact on public health challenges
- Apply the basic concepts of human biology (immune system, DNA, the neurological system, etc.) to inform understanding of various impacts of illness, the environment, and genetics on human health
- Understand, discuss, and challenge different perspectives on what constitutes scientific inquiry, the norms of science, and the roles of paradigms in shaping the evolution of science in order to apply questions to the limits of validity and interpretability of information and data and explaining sources of uncertainty in scientific results
- Apply a systems approach to identifying and implementing appropriate policy and interventions to addressing the complex molecular, biological, and social system interactions causing disease and other public health problems
- Explain and analyze the linkages between social, historical, cultural, economic and political changes associated with globalization and the key health problems of the early 21st century, including globalization as a key determinant of health and the varied burden of disease across nations
- Understand the essential role that program planning, design, and evaluation plays with improving public health decision-making and practice.
- Interact effectively and collaboratively with both diverse individuals and communities to produce or impact an intended public health outcome
- Effectively lead and communicate a shared vision of the future by championing solutions to organizational and community challenges
- Demonstrate ethical choices, values and professional practices implicit in public health decisions
- Communicate effectively (in oral and written formats) about public health policy, research, findings, and their implications to a variety of audiences
- Demonstrate a breadth and depth of professional knowledge and skills for effective practice in their selected field of study
Sm 1
Required: PUBH P6020 - Foundations of Public Health (1.5 cr)
Required: PUBH P6031 - Research Methods and Applications (5 cr)
Required: PUBH P6040 - Biological and Environmental Determinants of Health (2.5 cr)
Required: PUBH P6051 - Social, Behavioral, and Systems Approaches to Public Health (1.5 cr)
Required: PUBH P6052 - Global and Developmental Perspectives, Policies and Programs (2 cr)
Required: PUBH P6060 - Health Systems (2.5 cr)
Required: PUBH P6070 - Integration of Science and Practice I (1.5 cr)

Sm 2
Required: PUBH P6081 - Leadership Development (1.5 cr)
Required: PUBH P6071 - Integration of Science and Practice II (1.5 cr)
Required: EPID P8438 - Epidemiology II: Design and Conduct of Observational Epidemiology (3 cr)
Required: BIST P8120 - Analysis of Categorical Data (3 cr)
Required: EPID P8483 - Applications of Epidemiologic Research Methods (3 cr)

Sm 3
Required: EPID P8400 - Principles of Epidemiology III: Applied Epidemiologic Analysis (3 cr)
Required: EPID P9419 - Master's Essay in Epidemiology I (1 cr)
Required: BIST P8100 - Applied Regression I (3 cr)

Sm 4
Required: EPID P9420 - Master's Essay in Epidemiology II (2 cr)
Required: BIST P8110 - Applied Regression II (3 cr)

Variable Semester
Certificate Elective (3 total cr) Sm 3 or 4
Certificate Elective (3 total cr) Sm 3 or 4
Selective (3 total cr): BIST P8140 - Introduction to Randomized Clinical Trials (3 cr) Sm 3 or 4
or BIST P8142 - Clinical Trial Methodology (3 cr)
or BIST P8144 - Pharmaceutical Statistics (3 cr)
Other Elective: EPI students require 3.5 credits from any department to fulfill degree credit minimum. (2.5 total cr) Sm 3 or 4

Certificate Electives
BIST 89260 - Building Interdisciplinary Research Models (2 cr)
BIST P6107 - Biostatistical Analysis Using SPSS (3 cr)
BIST P6170 - New Drug Development: A Regulatory Overview (3 cr)
BIST P8119 - Advanced Statistical and Computational Methods in Genetics and Genomics (3 cr)
BIST P8140 - Introduction to Randomized Clinical Trials (3 cr)
BIST P8142 - Clinical Trial Methodology (3 cr)
BIST P8144 - Pharmaceutical Statistics (3 cr)
BIST P8158 - Latent Variable and Structural Equation Modeling for Health Sciences (3 cr)
BIST P8177 - Biostatistics in Legal Proceedings (3 cr)
BIST P8180 - Research Data Coordination: Principles and Practices (3 cr)

Degree or Credit Requirements
Flat-rate tuition covers a maximum of 60 credits to fulfill a minimum of 52 required credits for the degree/certificate. Degree/certificate combinations have prescribed plans to keep students on pace toward graduation, while taking no more than 18 credits per semester. Some students may have the flexibility to take additional electives outside of these plans, but it is each student’s responsibility to manage her/his course load to remain within the 18 credits/semester and 60 credit/cumulative maximums. Students will be charged a per-point rate if they go above these maximums and must request OSA approval to take more than 18 credits per semester. It is vital that each student look ahead at her/his specific academic plan to avoid a situation where one must take required courses that would put one’s semester/cumulative credit total above 18/60. No academic plan will force a student into this situation, so any additional costs related to overages are the responsibility of the student.

Certificate Contact Information
Martina Pavlicova
pavlicov@gmail.com
Associate Professor
Biostatistics

Justine Herrera
jh2477@cumc.columbia.edu
Assistant Director, Academic Programs
Biostatistics

General Inquiries
Office of Educational Programs
msph-oep@columbia.edu
212.305.1954
**Fall 2016 Entering Students**

**Certificate: Comparative Effectiveness and Outcomes**

**Department: Epidemiology**

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<thead>
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<tr>
<td><strong>Required:</strong> PUBH P6020 - Foundations of Public Health (1.5 cr)</td>
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<td><strong>Required:</strong> PUBH P6031 - Research Methods and Applications (5 cr)</td>
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<tr>
<td><strong>Required:</strong> PUBH P6040 - Biological and Environmental Determinants of Health (2.5 cr)</td>
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<td><strong>Required:</strong> PUBH P6051 - Social, Behavioral, and Systems Approaches to Public Health (1.5 cr)</td>
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<tr>
<td><strong>Required:</strong> PUBH P6052 - Global and Developmental Perspectives, Policies and Programs (2 cr)</td>
</tr>
<tr>
<td><strong>Required:</strong> PUBH P6060 - Health Systems (2.5 cr)</td>
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<tr>
<td><strong>Required:</strong> PUBH P6070 - Integration of Science and Practice I (1.5 cr)</td>
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<td><strong>Required:</strong> PUBH P6081 - Leadership Development (1.5 cr)</td>
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<tr>
<td><strong>Required:</strong> PUBH P6071 - Integration of Science and Practice II (1.5 cr)</td>
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<tr>
<td><strong>Required:</strong> EPID P8438 - Epidemiology II: Design and Conduct of Observational Epidemiology (3 cr)</td>
</tr>
<tr>
<td><strong>Required:</strong> BIST P8120 - Analysis of Categorical Data (3 cr)</td>
</tr>
<tr>
<td><strong>Required:</strong> EPID P8483 - Applications of Epidemiologic Research Methods (3 cr)</td>
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<tr>
<td><strong>Required:</strong> HPMN P8568 - Decision Analysis for Clinical and Public Health Practices (3 cr)</td>
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<tr>
<td><strong>Required:</strong> EPID P8400 - Principles of Epidemiology III: Applied Epidemiologic Analysis (3 cr)</td>
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<td><strong>Required:</strong> EPID P9419 - Master’s Essay in Epidemiology I (1 cr)</td>
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<tr>
<td><strong>Selective (1.5 total cr):</strong> HPMN P8510 - Strategic Issues in Health Care Quality (1.5 cr)</td>
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<tr>
<td>or HPMN P8565 - Landscape of Healthcare Quality: Perspectives and Initiatives (1.5 cr)</td>
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<td><strong>Required:</strong> HPMN P8508 - Research Methods III: Analysis of Large Scale Data (3 cr)</td>
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<td><strong>Required:</strong> HPMN P6503 - Introduction to Health Economics (3 cr)</td>
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<td><strong>Certificate Elective (1.5 total cr)</strong></td>
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<tr>
<td><strong>Required:</strong> EPID P9420 - Master’s Essay in Epidemiology II (2 cr)</td>
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<td><strong>Required:</strong> HPMN P8586 - Applied Methods in Health Services and Outcomes Research (1.5 cr)</td>
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<td><strong>Certificate Elective (1.5 total cr)</strong></td>
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</tbody>
</table>

**Variable Semester**

**Other Elective:** EPI students require 2.5 credits from any department to fulfill degree credit minimum. (2.5 total cr)

**Certificate Electives**

- BIST P8100 - Applied Regression I (3 cr)
- BIST P8116 - Design of Medical Experiments (3 cr)
- BIST P8140 - Introduction to Randomized Clinical Trials (3 cr)
- BIST P8142 - Clinical Trial Methodology (3 cr)
- BIST P8144 - Pharmaceutical Statistics (3 cr)
- BIST P8146 - Pharmaceutical Perspective to Systems and Methodologies from an Industry Perspective (1 cr)
BIST P8180 - Research Data Coordination: Principles and Practices (3 cr)
EPID P8401 - Pharmacoepidemiology (3 cr)
EPID P8414 - Cancer Epidemiology (3 cr)
EPID P8415 - Chronic Disease Epidemiology (3 cr)
EPID P8417 - Selected Problems of Measurement in Epidemiology (3 cr)
EPID P8465 - Epidemiology of HIV and AIDS (3 cr)
EPID P8469 - Epidemiology of Malaria (3 cr)
EPID P8470 - Epidemiology of Drug and Alcohol Problems (3 cr)
HPMN P6529 - Healthcare Accounting and Budgeting (3 cr)
HPMN P8501 - Innovation in Health Policy (1.5 cr)
HPMN P8517 - Management Challenges in the Evolving Healthcare and Insurance System (3 cr)
HPMN P8519 - Forecasting for Drug Development Strategy (1.5 cr)
HPMN P8536 - Health Information Technology (1.5 cr)
HPMN P8538 - Health Policy in Action: Institutional Response to Healthcare Reform (1.5 cr)
HPMN P8540 - Is Bigger Better? Market Concentration, Prices, and Profits in the Healthcare Industry (1.5 cr)
HPMN P8541 - Economics of Medical Technology (3 cr)
HPMN P8544 - Environmental Health Economics (1.5 cr)
HPMN P8553 - Strategic Planning for Health Insurance Plans (1.5 cr)
HPMN P8562 - Consulting Workshop (3 cr)
HPMN P8563 - Transformation in Economic Models of Healthcare (1.5 cr)
HPMN P8570 - Drugs, Devices & Public Health: Policy & Management Issues (1.5 cr)
HPMN P8584 - Transforming the Delivery of Healthcare Services (1.5 cr)
HPMN P8598 - On The Road From Volume to Value: Understanding Healthcare Reimbursement (1.5 cr)
POPF P6615 - Demographic Methods and Principles (1.5 cr)
SOSC P8771 - Community Based Participatory Research (3 cr)

Degree or Credit Requirements
Flat-rate tuition covers a maximum of 60 credits to fulfill a minimum of 52 required credits for the degree/certificate. Degree/certificate combinations have prescribed plans to keep students on pace toward graduation, while taking no more than 18 credits per semester. Some students may have the flexibility to take additional electives outside of these plans, but it is each student’s responsibility to manage her/his course load to remain within the 18 credits/semester and 60 credit/cumulative maximums. Students will be charged a per-point rate if they go above these maximums and must request OSA approval to take more than 18 credits per semester. It is vital that each student look ahead at her/his specific academic plan to avoid a situation where one must take required courses that would put one’s semester/cumulative credit total above 18/60. No academic plan will force a student into this situation, so any additional costs related to overages are the responsibility of the student.

Certificate Contact Information
Matt Neidell
mn2191@cumc.columbia.edu
Associate Professor, Health Policy and Management

General Inquiries
Office of Educational Programs
msph-oep@columbia.edu
212.305.1954
Fall 2016 Entering Students
Certificate: Epidemiology of Chronic Disease
Department: Epidemiology

Sm 1
Required: PUBH P6020 - Foundations of Public Health (1.5 cr)
Required: PUBH P6031 - Research Methods and Applications (5 cr)
Required: PUBH P6040 - Biological and Environmental Determinants of Health (2.5 cr)
Required: PUBH P6051 - Social, Behavioral, and Systems Approaches to Public Health (1.5 cr)
Required: PUBH P6052 - Global and Developmental Perspectives, Policies and Programs (2 cr)
Required: PUBH P6060 - Health Systems (2.5 cr)
Required: PUBH P6070 - Integration of Science and Practice I (1.5 cr)

Sm 2
Required: PUBH P6081 - Leadership Development (1.5 cr)
Required: PUBH P6071 - Integration of Science and Practice II (1.5 cr)
Required: EPID P8438 - Epidemiology II: Design and Conduct of Observational Epidemiology (3 cr)
Required: BIST P8120 - Analysis of Categorical Data (3 cr)
Required: EPID P8483 - Applications of Epidemiologic Research Methods (3 cr)
Required: EPID P8415 - Chronic Disease Epidemiology (3 cr)

Sm 3
Required: EPID P8400 - Principles of Epidemiology III: Applied Epidemiologic Analysis (3 cr)
Required: EPID P9419 - Master's Essay in Epidemiology I (1 cr)

Sm 4
Required: EPID P9420 - Master's Essay in Epidemiology II (2 cr)

Variable Semester
Selective (3 total cr): EPID P8414 - Cancer Epidemiology (3 cr)  Sm 3 or 4
or EPID P8440 - Epidemiology of Cardiovascular Diseases (3 cr)
[Substantive Selective. Enrollment in first choice selective course is not guaranteed.]
Selective (3 total cr): BIST P8110 - Applied Regression II (3 cr)  Sm 3 or 4
or BIST P8140 - Introduction to Randomized Clinical Trials (3 cr)
or BIST P8142 - Clinical Trial Methodology (3 cr)
or EHSC P8371 - Public Health GIS (3 cr)
or EPID P8417 - Selected Problems of Measurement in Epidemiology (3 cr)
or SOSC P8705 - Evaluation of Health Programs (3 cr)
or EPID P8405 - Genetics in Epidemiology (3 cr)
or BIST P8100 - Applied Regression I (3 cr)
[Methods Selective. Enrollment in first choice selective course is not guaranteed.]
Certificate Electives: Can be fulfilled by any courses from Certificate Elective list. In addition to the Certificate Electives listed below, students may also take any of the courses listed in the Selective list that have not already been taken to fulfill the Selective requirement. As with Selectives, enrollment in elective courses is not guaranteed. (6 total cr)

Required: EPID P8476 - Epidemiology of Chronic Disease Seminar (0.5 cr) Sm 2 or 3

Required: EPID P8476 - Epidemiology of Chronic Disease Seminar (0.5 cr) Sm 3 or 4

Other Elective: EPI students require 1.5 credits from any department to fulfill degree credit minimum. (1.5 total cr)

Certificate Electives
BIST P8100 - Applied Regression I (3 cr)
BIST P8110 - Applied Regression II (3 cr)
BIST P8140 - Introduction to Randomized Clinical Trials (3 cr)
BIST P8142 - Clinical Trial Methodology (3 cr)
EHSC P8307 - Molecular Epidemiology (3 cr)
EHSC P8319 - Biomarkers in Environmental Health (3 cr)
EHSC P8371 - Public Health GIS (3 cr)
EPID P8401 - Pharmacoepidemiology (3 cr)
EPID P8403 - Nutritional Epidemiology (3 cr)
EPID P8405 - Genetics in Epidemiology (3 cr)
EPID P8407 - Epidemiology of Aging (3 cr)
EPID P8414 - Cancer Epidemiology (3 cr)
EPID P8417 - Selected Problems of Measurement in Epidemiology (3 cr)
EPID P8432 - Environmental Epidemiology (3 cr)
EPID P8440 - Epidemiology of Cardiovascular Diseases (3 cr)
EPID P8441 - Chronic Cardiovascular Disease Prevention (3 cr)
EPID P8450 - Clinical Epidemiology (3 cr)
EPID P8470 - Epidemiology of Drug and Alcohol Problems (3 cr)
EPID P8471 - Social Epidemiology (3 cr)
EPID P8486 - Applying Epidemiologic Methods to Complementary and Integrative Medicine (3 cr)
EPID P8493 - Life Course Epidemiology (3 cr)
EPID P8825 - Global Chronic Disease: The Roles of Public Health (3 cr)
EPID P9493 - Neurological Epidemiology (3 cr)
HPMN P8568 - Decision Analysis for Clinical and Public Health Practices (3 cr)
SOSC P6750 - Confronting Obesity: Society, Structures, and Policy (3 cr)
SOSC P8705 - Evaluation of Health Programs (3 cr)
SOSC P8717 - Urban Space and Health (3 cr)
SOSC P8737 - Emerging Topics in Urbanism and Community Health (1.5 cr)
SOSC P8745 - Social and Economic Determinants of Health (3 cr)
SOSC P8750 - Race and Health (3 cr)
SOSC P8762 - Chronic Disease and Community Health (3 cr)

Degree or Credit Requirements
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per-point rate if they go above these maximums and must request OSA approval to take more than 18 credits per semester. It is vital that each student look ahead at her/his specific academic plan to avoid a situation where one must take required courses that would put one’s semester/cumulative credit total above 18/60. No academic plan will force a student into this situation, so any additional costs related to overages are the responsibility of the student.

Certificate Contact Information
Heather Greenlee
hg2120@cumc.columbia.edu
Assistant Professor, Epidemiology

General Inquiries
Office of Educational Programs
msph-oep@columbia.edu
212.305.1954
Fall 2016 Entering Students
Certificate: Global Health
Department: Epidemiology

Sm 1
- Required: PUBH P6020 - Foundations of Public Health (1.5 cr)
- Required: PUBH P6031 - Research Methods and Applications (5 cr)
- Required: PUBH P6040 - Biological and Environmental Determinants of Health (2.5 cr)
- Required: PUBH P6051 - Social, Behavioral, and Systems Approaches to Public Health (1.5 cr)
- Required: PUBH P6052 - Global and Developmental Perspectives, Policies and Programs (2 cr)
- Required: PUBH P6060 - Health Systems (2.5 cr)
- Required: PUBH P6070 - Integration of Science and Practice I (1.5 cr)

Sm 2
- Required: PUBH P6081 - Leadership Development (1.5 cr)
- Required: PUBH P6071 - Integration of Science and Practice II (1.5 cr)
- Required: EPID P8438 - Epidemiology II: Design and Conduct of Observational Epidemiology (3 cr)
- Required: BIST P8120 - Analysis of Categorical Data (3 cr)
- Required: EPID P8483 - Applications of Epidemiologic Research Methods (3 cr)
- Required: EPID P6811 - Priorities in Global Public Health (3 cr)
- Required: EPID P8881 - Global Health Pre-Practicum Seminar (0.5 cr)

Sm 3
- Required: EPID P8819 - Global Health International Practicum (0-1 cr)

Sm 4
- Required: EPID P9420 - Master’s Essay in Epidemiology II (2 cr)
- Required: EPID P8820 - Advanced Topics in Global Health (3 cr)
- Required: EPID P8885 - Global Health Post-Practicum Seminar (0.5 cr)

Variable Semester
- Required: EPID P8400 - Principles of Epidemiology III: Applied Epidemiologic Analysis (3 cr) Summer
  [Required: Summer I semester]
- Required: EPID P8819 - Global Health International Practicum (0-1 cr) Summer
  [Required: Summer]
- Certificate Elective (6 total cr) Any Sm
- Other Elective: EPI students require 5.5 credits from any department to fulfill degree credit minimum. (5.5 total cr)

Professional development in Global Health is a strongly recommended seminar for Global Health students. This is a one-hour bimonthly session during the Fall. Contact Certificate Lead for more detail.

Certificate Electives
- EHSC P8304 - Public Health Impacts of Climate Change (3 cr)
### APPENDIX 2  COURSE REQUIREMENTS FOR 8 SAMPLE CERTIFICATE PROGRAMS

**Fall 2016 Entering Students**  
**Certificate: Global Health**  
**Department: Epidemiology**

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<td>Basic and Applied Nutritional Science: Emerging Global Issues (3 cr)</td>
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<td>EHSC P8371</td>
<td>Public Health GIS (3 cr)</td>
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<td>EHSC P9303</td>
<td>Applied Environmental Public Health Science (3 cr)</td>
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<td>EHSC P9320</td>
<td>Water and Infectious Diseases (3 cr)</td>
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<td>EPID P6813</td>
<td>Priorities in Global Mental Health (3 cr)</td>
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<td>EPID P8403</td>
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<td>Epidemiology of Infectious Diseases (3 cr)</td>
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<td>EPID P8488</td>
<td>Epidemiologic Research Topics in Developing Countries (3 cr)</td>
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<tr>
<td>EPID P8825</td>
<td>Global Chronic Disease: The Roles of Public Health (3 cr)</td>
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<tr>
<td>EPID P8830</td>
<td>HIV and Health Systems: Implementing Chronic Disease Programs in Resource-Limited Settings (1.5 cr)</td>
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<tr>
<td>HPMN P8507</td>
<td>Health and International Development: Institutions, Policies and Politics (3 cr)</td>
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<tr>
<td>HPMN P8539</td>
<td>Health and Health Systems in Low Income Countries (3 cr)</td>
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<tr>
<td>HPMN P8575</td>
<td>Cross-National Health Policy and Management (1.5 cr)</td>
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<tr>
<td>HPMN P8577</td>
<td>Health Policy in the Global Context (1.5 cr)</td>
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<tr>
<td>HPMN P8580</td>
<td>Global Health Governance (1.5 cr)</td>
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<tr>
<td>HPMN P8588</td>
<td>Health Disparities and Public Policy (1.5 cr)</td>
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<tr>
<td>POPF P6615</td>
<td>Demographic Methods and Principles (1.5 cr)</td>
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<td>POPF P6670</td>
<td>Accountability in Humanitarian Aid (1.5 cr)</td>
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<td>POPF P8601</td>
<td>Public Health Program Planning (3 cr)</td>
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<tr>
<td>POPF P8610</td>
<td>SRH and HIV/AIDS: Clinical, Policy, and Program Perspectives (3 cr)</td>
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<tr>
<td>POPF P8612</td>
<td>Eliminating Pediatric AIDS: Towards a Global Approach (1.5 cr)</td>
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<td>POPF P8620</td>
<td>Protection of Children in Disaster and War (3 cr)</td>
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<tr>
<td>POPF P8625</td>
<td>Communicable Diseases in Complex Emergencies (1.5 cr)</td>
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<tr>
<td>POPF P8626</td>
<td>Planning Child Survival Programs (1.5 cr)</td>
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<tr>
<td>POPF P8628</td>
<td>Public Health Aspects of Child Health (3 cr)</td>
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<td>POPF P8640</td>
<td>Methods in Program Evaluation (3 cr)</td>
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<tr>
<td>POPF P8642</td>
<td>Health Assessment, Program Design, Program Monitoring in Emergencies (1.5 cr)</td>
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<tr>
<td>POPF P8653</td>
<td>Vaccines: From Biology to Policy (1.5 cr)</td>
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<tr>
<td>POPF P8654</td>
<td>Malaria Program Planning (1.5 cr)</td>
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<tr>
<td>POPF P8659</td>
<td>Fundamentals of Health Care Systems in Developing Countries (1.5 cr)</td>
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<tr>
<td>POPF P8670</td>
<td>Training for Public Health Programs (1.5 cr)</td>
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<tr>
<td>POPF P8671</td>
<td>The Globalization of Motherhood: Declining Birthrates and the Deconstruction of Biology &amp; Care (1.5 cr)</td>
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<tr>
<td>POPF P8673</td>
<td>Reproductive Health in Crisis Situations (1.5 cr)</td>
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<tr>
<td>POPF P8675</td>
<td>Health Systems Approach to Maternal Mortality (1.5 cr)</td>
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<tr>
<td>POPF P8676</td>
<td>Epidemiological Methods for Measuring Human Rights Abuses (1.5 cr)</td>
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<tr>
<td>POPF P8679</td>
<td>Investigative Methods in Complex Emergencies (3 cr)</td>
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<tr>
<td>POPF P8683</td>
<td>Psychosocial and Mental Health Issues in Forced Migration (1.5 cr)</td>
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</tr>
<tr>
<td>POPF P8685</td>
<td>Migration and Health Global and Local Perspectives (1.5 cr)</td>
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POPF P8687 - Public Health and Humanitarian Action (3 cr)
POPF P8692 - Law, Policy, and Human Rights (3 cr)
POPF P9620 - Applications of Implementation Science in Low- and Middle-Income Countries (1.5 cr)
POPF P9630 - Research Ethics and Responsible Conduct of Research (1-2 cr)
SOSC P8725 - Global AIDS Policy (3 cr)
SOSC P8739 - Global Health, Human Rights, and Ethics (3 cr)
SOSC P8741 - Structural Approaches to Global Health (3 cr)
SOSC P8745 - Social and Economic Determinants of Health (3 cr)
SOSC P8757 - The Global Politics of Aging: Historical & Policy Perspectives (3 cr)
SOSC P8793 - Public Health Emergency Preparedness and Response (3 cr)

Degree or Credit Requirements
Flat-rate tuition covers a maximum of 60 credits to fulfill a minimum of 52 required credits for the degree/certificate. The Global Health Certificate is designed to keep students on pace toward graduation, while taking no more than 20 credits per semester in the spring semesters. Some students may have the flexibility to take additional electives, but it is each student’s responsibility to manage her/his course load to remain within the 20 credits/semester and 60 credit/cumulative maximums. Students will be charged a per-point rate if they go above these maximums and must request OSA approval to take more than 20 credits per semester. It is vital that each student look ahead at her/his specific academic plan to avoid a situation where one must take required courses that would put one’s semester/cumulative credit total above 20/60. No academic plan will force a student into this situation, so any additional costs related to overages are the responsibility of the student.

Certificate Contact Information
Faculty Lead:
Anne Paxton
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Associate Professor of Clinical Epidemiology
Population and Family Health

Batya Elul
Associate Director
be2124@cumc.columbia.edu
Assistant Professor of Epidemiology at CUMC

Certificate Contact:
Aravind Pillai
Program Coordinator
Global Health Certificate
ap2664@cumc.columbia.edu
212-304-6532

EPI Faculty Contact:
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Associate Professor of Clinical Epidemiology & Population and Family Health

General Inquiries
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msph-oep@columbia.edu
212.305.1954
Fall 2016 Entering Students
Certificate: Health of an Aging Society
Department: Epidemiology

Sm 1
Required: PUBH P6020 - Foundations of Public Health (1.5 cr)
Required: PUBH P6031 - Research Methods and Applications (5 cr)
Required: PUBH P6040 - Biological and Environmental Determinants of Health (2.5 cr)
Required: PUBH P6051 - Social, Behavioral, and Systems Approaches to Public Health (1.5 cr)
Required: PUBH P6052 - Global and Developmental Perspectives, Policies and Programs (2 cr)
Required: PUBH P6060 - Health Systems (2.5 cr)
Required: PUBH P6070 - Integration of Science and Practice I (1.5 cr)

Sm 2
Required: PUBH P6081 - Leadership Development (1.5 cr)
Required: PUBH P6071 - Integration of Science and Practice II (1.5 cr)
Required: EPID P8438 - Epidemiology II: Design and Conduct of Observational Epidemiology (3 cr)
Required: BIST P8120 - Analysis of Categorical Data (3 cr)
Required: EPID P8483 - Applications of Epidemiologic Research Methods (3 cr)

Sm 3
Required: EPID P8400 - Principles of Epidemiology III: Applied Epidemiologic Analysis (3 cr)
Required: EPID P9419 - Master’s Essay in Epidemiology I (1 cr)
Required: SOSC P8701 - Social Dimensions of Aging (3 cr)
Required: SOSC P8757 - The Global Politics of Aging: Historical & Policy Perspectives (3 cr)

Sm 4
Required: EPID P9420 - Master’s Essay in Epidemiology II (2 cr)
Required: EPID P8407 - Epidemiology of Aging (3 cr)
Certificate Elective (6 total cr)

Variable Semester
Other Elective: EPI students require 2.5 credits from any department to fulfill degree credit minimum. (2.5 total cr)
Sm 3 or 4

Additional Certificate Requirements:
Attend one Aging-related seminar per semester. Students must therefore attend a total of 4 Aging-related seminars during their MPH. [0 total credits; Semesters 1,2,3,4]

Certificate Electives
BIST P8100 - Applied Regression I (3 cr)
EPID P6813 - Priorities in Global Mental Health (3 cr)
EPID P8404 - Epidemiology of Genetics and Aging (3 cr)
EPID P8427 - System Science & Population Health (3 cr)
EPID P8499 - Field Methods in Epidemiology (3 cr)
EPID P9493 - Neurological Epidemiology (3 cr)
HPMN P8528 - Population Aging and Health Policy: A Global Perspective (3 cr)
APPENDIX 2  COURSE REQUIREMENTS FOR 8 SAMPLE CERTIFICATE PROGRAMS

Fall 2016 Entering Students
Certificate: Health of an Aging Society
Department: Epidemiology

HPMN P8530 - Seminar on Aging and Health Policy (1.5 cr)
HPMN P8564 - Health Related Issues in Quality of Life Across the Adult Life Course (3 cr)
HPMN P8580 - Global Health Governance (1.5 cr)
POPF P8671 - The Globalization of Motherhood: Declining Birthrates and the Deconstruction of
Biology & Care (1.5 cr)
SOSC P6726 - Public Health and Disability Policy (3 cr)
SOSC P8717 - Urban Space and Health (3 cr)
SOSC P8764 - Chronic Disease: Contemporary Challenges in Historical Perspective (3 cr)
SOSC P8785 - Qualitative Research Methods (3 cr)

Degree or Credit Requirements
Flat-rate tuition covers a maximum of 60 credits to fulfill a minimum of 52 required credits for the degree/certificate. Degree/certificate combinations have prescribed plans to keep students on pace toward graduation, while taking no more than 18 credits per semester. Some students may have the flexibility to take additional electives outside of these plans, but it is each student’s responsibility to manage her/his course load to remain within the 18 credits/semester and 60 credit/cumulative maximums. Students will be charged a per-point rate if they go above these maximums and must request OSA approval to take more than 18 credits per semester. It is vital that each student look ahead at her/his specific academic plan to avoid a situation where one must take required courses that would put one’s semester/cumulative credit total above 18/60. No academic plan will force a student into this situation, so any additional costs related to overages are the responsibility of the student.

Certificate Contact Information
David Weiss
dw2629@cumc.columbia.edu
Assistant Professor
Sociomedical Sciences

General Inquiries
Office of Educational Programs
msph-oep@columbia.edu
212.305.1954
Fall 2016 Entering Students

Certificate: Infectious Disease Epidemiology
Department: Epidemiology

Sm 1
Required: PUBH P6020 - Foundations of Public Health (1.5 cr)
Required: PUBH P6031 - Research Methods and Applications (5 cr)
Required: PUBH P6040 - Biological and Environmental Determinants of Health (2.5 cr)
Required: PUBH P6051 - Social, Behavioral, and Systems Approaches to Public Health (1.5 cr)
Required: PUBH P6052 - Global and Developmental Perspectives, Policies and Programs (2 cr)
Required: PUBH P6060 - Health Systems (2.5 cr)
Required: PUBH P6070 - Integration of Science and Practice I (1.5 cr)

Sm 2
Required: PUBH P6081 - Leadership Development (1.5 cr)
Required: PUBH P6071 - Integration of Science and Practice II (1.5 cr)
Required: EPID P8438 - Epidemiology II: Design and Conduct of Observational Epidemiology (3 cr)
Required: BIST P8120 - Analysis of Categorical Data (3 cr)
Required: EPID P8483 - Applications of Epidemiologic Research Methods (3 cr)

Sm 3
Required: EPID P8400 - Principles of Epidemiology III: Applied Epidemiologic Analysis (3 cr)
Required: EPID P9419 - Master’s Essay in Epidemiology I (1 cr)
Required: EPID P8475 - Emerging Infectious Diseases (3 cr)
Certificate Elective (3 total cr)

Sm 4
Required: EPID P9420 - Master’s Essay in Epidemiology II (2 cr)
Certificate Elective (6 total cr)

Variable Semester
Required: EPID P8406 - Epidemiology of Infectious Diseases (3 cr) Sm 2*
[Recommended to take in Semester 2]
Other Elective (2.5 total cr) Sm 3 or 4

Certificate students receive notices of Infectious Disease group Seminar meetings that are held periodically (attendance is optional). Contact Certificate Lead for more detail.

Any students interested in taking the following courses as Certificate Electives, please contact the Infectious Disease Epidemiology Certificate Lead:

Department of Biological Sciences:
W3310-VIROLOGY (Morningside campus)
W4310-VIROLOGY (Morningside campus)
Department of Ecology, Evolution, and Environmental Biology:
EEEB4127-Disease Ecology (Morningside campus)

Certificate Electives
BIST P8102 - Basic Laboratory Methods in Patient Oriented Research (1 cr)
EHSC P8308 - Molecular Toxicology (3 cr)
EHSC P8323 - Laboratory Methods in Environmental Health Sciences (3 cr)
EHSC P8329 - Water, Sanitation, and Human Health (3 cr)
EPID P8430 - Public Health Surveillance (3 cr)
EPID P8442 - Epidemiology and Control of Tuberculosis (3 cr)
EPID P8465 - Epidemiology of HIV and AIDS (3 cr)
EPID P8469 - Epidemiology of Malaria (3 cr)
EPID P8477 - Epi Modeling for Infectious Diseases (3 cr)
EPID P8488 - Epidemiologic Research Topics in Developing Countries (3 cr)
POPF P8612 - Eliminating Pediatric AIDS: Towards a Global Approach (1.5 cr)
POPF P8625 - Communicable Diseases in Complex Emergencies (1.5 cr)
POPF P8651 - Water and Sanitation in Complex Emergencies (1.5 cr)
POPF P8653 - Vaccines: From Biology to Policy (1.5 cr)
POPF P8654 - Malaria Program Planning (1.5 cr)
SOSC P8725 - Global AIDS Policy (3 cr)

Degree or Credit Requirements
Flat-rate tuition covers a maximum of 60 credits to fulfill a minimum of 52 required credits for the degree/certificate. Degree/certificate combinations have prescribed plans to keep students on pace toward graduation, while taking no more than 18 credits per semester. Some students may have the flexibility to take additional electives outside of these plans, but it is each student’s responsibility to manage her/his course load to remain within the 18 credits/semester and 60 credit/cumulative maximums. Students will be charged a per-point rate if they go above these maximums and must request OSA approval to take more than 18 credits per semester. It is vital that each student look ahead at her/his specific academic plan to avoid a situation where one must take required courses that would put one’s semester/cumulative credit total above 18/60. No academic plan will force a student into this situation, so any additional costs related to overages are the responsibility of the student.

Certificate Contact Information
Stephen Morse
ssm20@cumc.columbia.edu
Professor
Epidemiology

General Inquiries
Office of Educational Programs
msph-oep@columbia.edu
212.305.1954
Fall 2016 Entering Students
Certificate: Injury Prevention and Control
Department: Epidemiology

**Sm 1**
- Required: PUBH P6020 - Foundations of Public Health (1.5 cr)
- Required: PUBH P6031 - Research Methods and Applications (5 cr)
- Required: PUBH P6040 - Biological and Environmental Determinants of Health (2.5 cr)
- Required: PUBH P6051 - Social, Behavioral, and Systems Approaches to Public Health (1.5 cr)
- Required: PUBH P6052 - Global and Developmental Perspectives, Policies and Programs (2 cr)
- Required: PUBH P6060 - Health Systems (2.5 cr)
- Required: PUBH P6070 - Integration of Science and Practice I (1.5 cr)

**Sm 2**
- Required: PUBH P6081 - Leadership Development (1.5 cr)
- Required: PUBH P6071 - Integration of Science and Practice II (1.5 cr)
- Required: EPID P8438 - Epidemiology II: Design and Conduct of Observational Epidemiology (3 cr)
- Required: BIST P8120 - Analysis of Categorical Data (3 cr)
- Required: EPID P8483 - Applications of Epidemiologic Research Methods (3 cr)

**Sm 3**
- Required: EPID P8400 - Principles of Epidemiology III: Applied Epidemiologic Analysis (3 cr)
- Required: EPID P9419 - Master’s Essay in Epidemiology I (1 cr)
- Certificate Elective (3 total cr)

**Sm 4**
- Required: EPID P9420 - Master’s Essay in Epidemiology II (2 cr)
- Selective (3 total cr): HPMN P8582 - Research Methods II: Program Evaluation (3 cr)
  - or POPF P8640 - Methods in Program Evaluation (3 cr)
- Certificate Elective (3 total cr)

**Variable Semester**
- Required: EPID P8430 - Public Health Surveillance (3 cr)  
  [Recommended to take in Semester 2, otherwise in Semester 4]
- Required: EPID P8448 - Methods in Injury Epidemiology and Prevention (3 cr)  
  [Recommended to take in Semester 2, otherwise in Semester 4]
- Required: EPID P8445 - Current and Emerging Issues in Injury and Violence (1.5 cr)  
  [Recommended to take in Semester 2 or 4, otherwise in Semester 1 or 3]
- Other Elective: EPI students require 1 credit from any department to fulfill degree credit minimum. (1 total cr)

**Certificate Electives**
- EHSC P8306 - Occupational and Environmental Hygiene (3 cr)
- EHSC P8320 - Applied Environmental and Industrial Hygiene (3 cr)
- EHSC P8371 - Public Health GIS (3 cr)
- EPID P8401 - Pharmacoepidemiology (3 cr)
- EPID P8404 - Epidemiology of Genetics and Aging (3 cr)
EPID P8410 - Psychiatric Epidemiology (3 cr)
EPID P8432 - Environmental Epidemiology (3 cr)
EPID P8450 - Clinical Epidemiology (3 cr)
EPID P8470 - Epidemiology of Drug and Alcohol Problems (3 cr)
HPMN P8508 - Research Methods III: Analysis of Large Scale Data (3 cr)
HPMN P8513 - Providing Healthcare to Vulnerable Communities (1.5 cr)
HPMN P8530 - Seminar on Aging and Health Policy (1.5 cr)
HPMN P8548 - Public Health Law (3 cr)
HPMN P8582 - Research Methods II: Program Evaluation (3 cr)
HPMN P8588 - Health Disparities and Public Policy (1.5 cr)
POPF P8620 - Protection of Children in Disaster and War (3 cr)
POPF P8639 - Gender-Based Violence in Complex Emergencies (1.5 cr)
POPF P8676 - Epidemiological Methods for Measuring Human Rights Abuses (1.5 cr)
POPF P8679 - Investigative Methods in Complex Emergencies (3 cr)
SOSC P6726 - Public Health and Disability Policy (3 cr)
SOSC P6758 - Introduction to Theory and Research on Interpersonal Violence (3 cr)
SOSC P8701 - Social Dimensions of Aging (3 cr)
SOSC P8793 - Public Health Emergency Preparedness and Response (3 cr)

Degree or Credit Requirements
Flat-rate tuition covers a maximum of 60 credits to fulfill a minimum of 52 required credits for the degree/certificate. Degree/certificate combinations have prescribed plans to keep students on pace toward graduation, while taking no more than 18 credits per semester. Some students may have the flexibility to take additional electives outside of these plans, but it is each student’s responsibility to manage her/his course load to remain within the 18 credits/semester and 60 credit/cumulative maximums. Students will be charged a per-point rate if they go above these maximums and must request OSA approval to take more than 18 credits per semester. It is vital that each student look ahead at her/his specific academic plan to avoid a situation where one must take required courses that would put one’s semester/cumulative credit total above 18/60. No academic plan will force a student into this situation, so any additional costs related to overages are the responsibility of the student.

Certificate Contact Information
Joyce Pressley
jp376@cumc.columbia.edu
Associate Professor
Epidemiology and Health Policy and Management

General Inquiries
Office of Educational Programs
msph-oep@columbia.edu
212.305.1954
## Fall 2016 Entering Students

**Certificate: Social Determinants of Health**

**Department: Epidemiology**

### Sm 1
- **Required:** PUBH P6020 - Foundations of Public Health (1.5 cr)
- **Required:** PUBH P6031 - Research Methods and Applications (5 cr)
- **Required:** PUBH P6040 - Biological and Environmental Determinants of Health (2.5 cr)
- **Required:** PUBH P6051 - Social, Behavioral, and Systems Approaches to Public Health (1.5 cr)
- **Required:** PUBH P6052 - Global and Developmental Perspectives, Policies and Programs (2 cr)
- **Required:** PUBH P6060 - Health Systems (2.5 cr)
- **Required:** PUBH P6070 - Integration of Science and Practice I (1.5 cr)

### Sm 2
- **Required:** PUBH P6081 - Leadership Development (1.5 cr)
- **Required:** PUBH P6071 - Integration of Science and Practice II (1.5 cr)
- **Required:** EPID P8438 - Epidemiology II: Design and Conduct of Observational Epidemiology (3 cr)
- **Required:** BIST P8120 - Analysis of Categorical Data (3 cr)
- **Required:** EPID P8483 - Applications of Epidemiologic Research Methods (3 cr)

### Sm 3
- **Required:** EPID P8400 - Principles of Epidemiology III: Applied Epidemiologic Analysis (3 cr)
- **Required:** EPID P9419 - Master’s Essay in Epidemiology I (1 cr)
- **Required:** EPID P8471 - Social Epidemiology (3 cr)
- **Required:** EPID P8481 - Seminar in Social Determinants of Health (0-.5 cr)
- **Certificate Elective (3 total cr)**

### Sm 4
- **Required:** EPID P9420 - Master’s Essay in Epidemiology II (2 cr)
- **Required:** EPID P8481 - Seminar in Social Determinants of Health (0-.5 cr)
- **Certificate Elective (3 total cr)**

### Variable Semester
- **Selective (3 total cr):**
  - SOSC P8745 - Social and Economic Determinants of Health (3 cr)
  - or SOSC P8741 - Structural Approaches to Global Health (3 cr)
  
  [P8745 can be taken in Semester 2, 3 or 4. P8741 can be taken in Semester 2 or 4.]
- **Other Elective:** EPI students require 4.5 credits from any department to fulfill degree credit minimum. (4.5 total cr)

**NOTE:** Students interested in greater exposure to social theory should enroll in SOSC P8745. It is recommended that you take SOSC P8745 in Sm 2, if possible. Students interested in more applied coursework should enroll in SOSC P8741.

### Certificate Electives
- EPID P8410 - Psychiatric Epidemiology (3 cr)
- EPID P8418 - Stress and Health (1.5 cr)
- EPID P8427 - System Science & Population Health (3 cr)
- EPID P8438 - Epidemiology II: Design and Conduct of Observational Epidemiology (3 cr)
- EPID P8493 - Lifecourse Epidemiology (3 cr)
EPID P8825 - Global Chronic Disease: The Roles of Public Health (3 cr)
SOSC P8701 - Social Dimensions of Aging (3 cr)
SOSC P8704 - Introduction to Medical Sociology (3 cr)
SOSC P8717 - Urban Space and Health (3 cr)
SOSC P8725 - Global AIDS Policy (3 cr)
SOSC P8730 - Stigma and Discrimination (3 cr)
SOSC P8736 - Theories and Perspectives on Sexuality and Health (3 cr)
SOSC P8738 - Gay and Lesbian Issues in Public Health (3 cr)
SOSC P8741 - Structural Approaches to Global Health (3 cr)
SOSC P8750 - Race and Health (3 cr)
SOSC P8753 - Current Issues in Latino Health (3 cr)
SOSC P8757 - The Global Politics of Aging: Historical & Policy Perspectives (3 cr)
SOSC P8763 - Stigma, Prejudice, and Discrimination as Social Stressors (3 cr)
SOSC P8773 - A Social History of American Public Health (3 cr)

**Degree or Credit Requirements**

Flat-rate tuition covers a maximum of 60 credits to fulfill a minimum of 52 required credits for the degree/certificate. Degree/certificate combinations have prescribed plans to keep students on pace toward graduation, while taking no more than 18 credits per semester. Some students may have the flexibility to take additional electives outside of these plans, but it is each student’s responsibility to manage her/his course load to remain within the 18 credits/semester and 60 credit/cumulative maximums. Students will be charged a per-point rate if they go above these maximums and must request OSA approval to take more than 18 credits per semester. It is vital that each student look ahead at her/his specific academic plan to avoid a situation where one must take required courses that would put one’s semester/cumulative credit total above 18/60. No academic plan will force a student into this situation, so any additional costs related to overages are the responsibility of the student.

**Certificate Contact Information**

Co-Leads:

Lisa Bates
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Assistant Professor
Epidemiology

Mark Hatzenbuehler
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Assistant Professor of Sociomedical Sciences

**General Inquiries**

Office of Educational Programs
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212.305.1954
Human Research Protection Office Students as Researchers Policy

Scope

This Policy applies to all human subjects research and other scholarly activities involving human participants conducted by students at Columbia University (“Columbia”) and clarifies which research projects or activities require review by the Columbia Institutional Review Board (IRB) for the protection of human subjects in research.

Effective date: [date]; this policy replaces the Students as Researchers Policy that was effective on March 16, 2012.

Definitions

Research is defined in 45 CFR 46.102(d), which applies to all research conducted by Columbia personnel or under the aegis of Columbia University, as a systematic investigation designed to develop or contribute to generalizable knowledge.

Human subject is defined in 45 CFR 46.102(f) as a living individual about whom an investigator (whether professional or student) conducting research obtains

1. Data through intervention or interaction with the individual, or
2. Identifiable private information.

Student Researcher is defined as an individual conducting research, or interacting with individuals in a way that exposes the individuals to greater than minimal risk as defined in this policy, as part of a course or degree requirement.

Background

All research with human subjects that is conducted by Columbia faculty, staff or students, or is otherwise conducted under the aegis of Columbia University, requires submission to a Columbia IRB and prospective IRB approval prior to commencement of research procedures.

Theses, dissertations and honors research projects are considered to meet the regulatory definition of research per 45 CFR 46. Students conducting these activities have reached a level of sophistication with respect to research design and conduct that may lead to generalizable results, e.g., those that may inform policy, apply to individuals or groups beyond the subject population, and/or contribute to the professional or scholarly literature on the topic. Publication may be an outcome but is not a requirement for a project and its results to be considered generalizable. IRB submission is required if the research involves human subjects.

Many student projects are not theses, dissertations or honors research activities, but are designed to provide students with experience in practicing research methodology, e.g., introductory research exercises or practicum assignments. In general, these activities do not meet the regulatory definition of research because the results would not likely be generalizable. However, some of these projects have characteristics that may place the individuals about whom data are gathered, for the purpose of the project, at risk of harm that is greater than that which the individual would normally experience in the course of their daily life or in routine medical or psychological examinations, i.e., the activity may present greater than minimal risk of harm to them. In addition, student investigators as a group have minimal experience in conducting research. Accordingly, these projects require additional scrutiny in order to protect the individuals who are involved. At Columbia, the IRB has been designated as the appropriate body to review these projects.
Policy

Dissertations, Masters’ theses and honors research projects that involve human subjects must be reviewed and approved by a Columbia IRB, or an IRB upon which Columbia has chosen to rely through the terms of an IRB Authorization Agreement (“Designated IRB”), prior to commencement of research procedures. Other student projects, e.g., introductory research exercises or practicum assignments, must be reviewed and approved by a Columbia or Designated IRB when they involve greater than minimal risk of harm to participants, to provide increased protection to the participants.

The responsibility for determining level of risk and whether a project requires IRB review rests with the student's faculty advisor and/or department. The Human Research Protection Office will provide training with respect to making these determinations and will conduct quality assurance audits to evaluate whether determinations that are being made are consistent with the policy.

Types of risk to which individuals may be exposed, and must be considered when evaluating level of risk for a project, include but are not limited to physical, psychological, financial, and social harm. When project participants are members of vulnerable populations, or are in a subordinate position to or fiduciary relationship with those conducting the project, risk level may be increased as a result, and additional protective measures may be necessary to avoid elements of coercion or undue influence.

Whether IRB review is required or not, faculty advisors must also ensure that projects are conducted in an ethical manner and provide active oversight throughout the life of the project. Being familiar with details of the project and incorporating human subject protection requirements into research methodology courses will facilitate these objectives.

See Appendix A for the question flow for determining whether a student project must be submitted to the IRB for review.

Frequently Asked Questions that may arise for student projects are addressed in Appendix B.

Appendix A: Decision flow

Does the activity that the student will conduct meet the regulatory definition of research?

■ If yes and
  ■ Identifiable data will be collected about living individuals, submission to the IRB is required
  ■ Data will be collected through interaction with individuals, submission to the IRB is required
  ■ Data will NOT be collected about living individuals, submission to the IRB is NOT required

■ If no and
  ■ Data will be collected about living individuals and
    ■ The activity presents more than minimal risk to the individuals, submission to the IRB is required
    ■ The activity presents no more than minimal risk to the individuals, submission to the IRB is NOT required
  ■ Data will NOT be collected about living individuals, submission to the IRB is not required
Appendix B: Frequently Asked Questions

1. What if, after a project that was designed to practice research methodology is completed, results are such that they can expand the professional or scholarly literature?

A proposal should be submitted to the IRB, requesting approval to analyze the existing data and disseminate results. The faculty advisor should be listed as the Principal Investigator and the student as a co-investigator. The IRB submission should describe the procedures that were used, noting that the project was conducted to learn research methodology, i.e., there was no intent to disseminate results. Approval of the proposed analysis and dissemination of results is not guaranteed. Data and results of analysis of the data may not be disseminated prior to IRB approval.

2. If a Columbia student will be working on a Columbia faculty member’s IRB-approved protocol, in a manner that constitutes engagement, what approval is required?

Engagement reflects participation beyond administrative activities, e.g., as an investigator, coordinator, or research assistant, and includes obtaining informed consent, interacting with study participants to collect research data, and having access to identifiable research data about participants. A modification must be submitted to add the student to the protocol.

3. If a Columbia student will be working, in a manner that constitutes engagement, on a project approved by a non-Columbia IRB for which a non-Columbia researcher is the Principal Investigator, is a submission to the Columbia IRB required?

Engagement reflects participation beyond administrative activities, e.g., as an investigator, coordinator, or research assistant, and includes obtaining informed consent, interacting with study participants to collect research data, and having access to identifiable research data about participants. A submission in Rascal is required in order to track the research activity. A Columbia faculty member must be listed as the Principal Investigator and the student should be listed as a co-investigator. The role of the Principal Investigator in this situation is to ensure that Columbia requirements (e.g., training, conflict of interest) are met, to confirm that IRB approval from the non-Columbia institution has been obtained and ensure that it remains current during the student's involvement, to serve as a resource when the student has questions or concerns about the research, and to appropriately route concerns or reports of unanticipated problems to the non-Columbia researcher and/or the IRB, should these situations arise. A brief summary of the project in which the student will be involved, and a description of the role of the student, are required, and documentation of approval from the non-Columbia IRB must be provided. Both the student and the Columbia PI must have satisfied the Columbia research training requirements.

4. If a Columbia student will be analyzing a de-identified dataset, under the mentorship of either a Columbia or non-Columbia advisor, is a submission to the Columbia IRB required?

a. A submission to the Columbia IRB is not required provided that all of the following criteria are met:
   - The activities in which the student will be involved are limited to analysis of a de-identified dataset;
   - The mentor ensures that the student will not have access to identifiers or other information that would enable the student to identify the individuals about whom the data were collected;
   - The Columbia faculty advisor and/or department maintain records of the student's involvement in the project, including documentation that the student's role was limited to analysis of de-identified data.

b. The same requirements apply when the data are coded, provided that the student is not provided with the key to the code.
c. In these situations the student is considered a mentee with a limited and defined role. The student is not considered a member of the “research team” that is conducting or has conducted the procedures through which the data will be or have been collected. This distinction is important because members of the research team are all considered to have access to identifiable subject data, if at least one member of the team has such access. Research personnel, including students, with access to identifiable subject data must be covered under an appropriate IRB approval.

5. Do federal regulations require IRB review of projects that do not meet the definition of research?

No, the requirement for submission of greater than minimal risk projects conducted by students, when the project does not meet the regulatory definition of research, is an institutional policy. It was implemented to safeguard individuals in investigative projects conducted by students, who are in the process of learning and practicing research methodology, and therefore are less experienced.

6. Why is it important to differentiate projects that are or are not subject to federal regulation?

To determine how much flexibility the HRPO has with respect to consent and approval requirements and consideration of whether reliance agreements are needed, among other issues. For projects that are not subject to federal regulation, the HRPO has more flexibility.

7. Can IRB Authorization Agreements (IAAs) apply to student research?

Yes, but only when federal regulations, other applicable statutes, or Columbia policies require an IRB submission. The IAA can be for a single project or groups of projects, e.g., all student projects overseen by Department of Health mentors. Note that IAAs generally only improve efficiency when used for projects that do not qualify for exemption or expedited review, or for multiple projects.

8. When IRB review is provided by a Designated IRB, is submission to the Columbia IRB also required?

A submission to the Columbia IRB is required for tracking purposes and to confirm that local requirements are met, e.g., training requirements, conflict of interest disclosures, and data security protections. Documentation of approval by the Designated IRB should be attached to the submission. At Columbia, the submission will receive an administrative review.