

**UNIVERSITY AT BUFFALO**

**DEPARTMENT OF EPIDEMIOLOGY AND  
ENVIRONMENTAL HEALTH**

**GRADUATE STUDENT  
HANDBOOK**

**2015-2016**



**University at Buffalo**  
*The State University of New York*

Department website: <http://sphhp.buffalo.edu/eeh>

Updated 10/7/15

Students: This is your handbook; it is interactive. Click on any title in the Table of Contents to be taken directly to the wording in the document. Refer to it often as you progress through your academic career. Feel free to contact me if you have any questions at [krklie@buffalo.edu](mailto:krklie@buffalo.edu) or 716-829-5364.

Academically yours,

*Karen DeGarmo*

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# INTRODUCTION

This handbook is a guide for students in the Department of Epidemiology and Environmental Health (EEH). These guidelines are meant to highlight important rules and procedures of the Department and also pertinent University regulations. Note: Department policies take precedence over Graduate School policies. Please use this document — it contains a great deal of important information. If you have questions about any of the procedures or the regulations, contact your advisor or the graduate program coordinator for assistance.

**All students are responsible for knowing the rules and procedures described in this EEH *Graduate Student Handbook* and also in the University's *Graduate School Policies and Procedures Manual* ([www.grad.buffalo.edu/Academics/Policies-Procedures.html](http://www.grad.buffalo.edu/Academics/Policies-Procedures.html)). It is the student's responsibility to ensure that all requirements are met and all necessary paperwork has been completed and filed in a timely manner.** Generally the procedures, policies and course requirements in effect at the time of matriculation will apply throughout a student's degree program. However, the department reserves the right to amend its regulations and procedures when necessary and grant students the right to petition regarding the amendments in individual cases. Students will be notified if and when regulations and procedures are amended, modified or otherwise changed.

**All students should activate and use their university email for university-related correspondence. Students are responsible for all information distributed via email.** Notices, announcements and cancellations are routinely posted through the Department's Listserv E-mail mailing list.

Students are assigned mailboxes located in Room 265 Farber Hall. Items of general interest are also posted on the bulletin board outside Room 265.

Checklist:

- ✓ **STUDENTS ARE RESPONSIBLE FOR ALL INFORMATION DISTRIBUTED VIA EMAIL, CONTAINED IN THE GRADUATE SCHOOL POLICY AND PROCEDURES MANUAL, AND EEH GRADUATE STUDENT HANDBOOK. Check your UB email daily and notify the Department if there is a change in your email address.**
- ✓ Check your student mailbox (Room 265) regularly.
- ✓ Notify both the Department and the Student Response Center ([www.registrar.buffalo.edu](http://www.registrar.buffalo.edu)) when there is a change in your home address and/or telephone number.
- ✓ Notify the Department when there is a change in your work address and/or telephone number.
- ✓ International students should report their social security number to the Department as soon as a number is assigned by the Social Security Administration.

## HISTORY & BACKGROUND OF THE DEPARTMENT

Epidemiology and public health have a long and rich history at the University at Buffalo (UB) and in western New York. As far back as 1843, one of the founding faculty members of the University, Austin Flint, did epidemiologic research, publishing a description of an outbreak of fever in the region. The first mention of a formal course in public health in the UB medical school catalog was in 1891, a course focusing on infectious disease prevention, hygiene and sanitation. In 1913, a division of the medical school was formed, Hygiene and Sanitation, and in 1919, a department of Hygiene and Public Health was established. In 1946, that department became the Department of Preventive Medicine and Public Health and in 1967 it was named the Department of Social and Preventive Medicine (SPM). In April 2014, the department's name was changed from SPM to Epidemiology and Environmental Health (EEH). This name better reflects the department's current focus in terms of the graduate programs and research in epidemiology, environmental health and health services administration.

Until 2003, EEH was part of the School of Medicine and Biomedical Sciences (SMBS). During that time, the focus of the department was on teaching and research in epidemiology but also included faculty with research focused in other areas of public health. In 1997 a partnership was formed with the State University of New York at Albany (UA) making it possible for students to obtain a Master of Public Health Degree (MPH) from UA with coursework at UB. This was followed with the creation in 2001 of UB's own MPH degree program in the Department of EEH offering two concentrations, epidemiology/biostatistics and health services administration.

In 2003, EEH became part of a newly formed School of Public Health and Health Professions (SPHHP), joining with School of Health Professions' colleagues in Exercise and Nutritional Sciences, and Rehabilitation Sciences and with colleagues in new departments of Biostatistics, and Community Health and Health Behavior. In 2009, SPHHP was accredited as a School of Public Health by the Council on Education for Public Health, and was recently reaccredited in summer 2015.

Within EEH we have a Division of Environmental Health Sciences, developed in 2010, and a Division of Health Services Policy and Practice, developed in 2014. The current graduate programs for EEH cover a number of disciplines. These diverse programs include an MS and PhD in Epidemiology. The MS degree also provides a specialized track in Clinical Research. Our PhD program also provides a National Institutes of Health (NIH) funded, multidisciplinary cancer training program. This program is run in collaboration with the Roswell Park Cancer Institute. Three of the five MPH concentrations offered at UB are housed in EEH, epidemiology (EPI), environmental health (EH) and health services administration (HSA). In addition to these two-year MPH programs, we also provide a one-year, accelerated MPH program for both EPI and HSA. Our EH MPH also includes a specialized track in global health. The department also has a combined internal medicine-preventive medicine residency program, with residents enrolling in the MS or MPH degrees as well as a number of combined degree programs (e.g., MD/PhD, MPH/JD).

# MISSION OF THE DEPARTMENT

The Mission of the department is three-fold:

1. Conduct research in epidemiology, environmental health and preventive medicine that will contribute to improvements in population health status in our community, our nation and the world.
2. Educate and develop scientists and practitioners for careers in epidemiology, environmental health, health services administration, preventive medicine, clinical research and public health. Utilize the expertise of the department for training in other departments in the School of Public Health and Health Professions (SPHHP) and in the University at Buffalo (UB).
3. Serve the public health needs of our communities by applying our resources and expertise to implement best practices in public health education, disease prevention and health promotion.

Training in epidemiology is offered at the PhD, MS and MPH levels and includes the study of epidemiologic research methods, biostatistics, and survey methods. Training also focuses on understanding the biological, behavioral, social, and organizational determinants of disease and outcomes. Epidemiologists work in a variety of settings such as academic and government research; public health agencies at the local, state, national, or international level; health care delivery systems such as hospitals and managed care organizations; private research firms; and industry.

In addition to epidemiology, the Department provides graduate training (MPH) in environmental health and health services administration. Training in environmental health focuses on an understanding of the sources and physiologic effects of physical, chemical, and biologic agents that affect the environment, such as air pollution, water pollution and food toxicology. Within this program, there is a Global Health concentration. The Environmental Health MPH program prepares students to work in public health in governmental agencies, academic settings, and non-profits focused on the environment and health. The Health Services Administration concentration prepares students in program planning and health policy who wish to focus on careers in health policy development or administration and evaluation of health programs in government, health agencies, as well as a variety of other settings such as non-profit health agencies, public health advocacy organizations, hospitals, or health maintenance organizations.



# GRADUATE STUDENT ASSISTANTSHIPS AND AWARDS

## TYPES OF ASSISTANTSHIPS

Assistantships, which provide a stipend and may include a full or partial tuition scholarship for the PhD program, also complement your learning experiences by providing the opportunity to apply the skills and knowledge you have gained.

All eligible students are considered for assistantships at the time of admission by the Admissions Committee. Appointments are for one year with the possibility of renewal for additional years.

### ***Graduate Assistantships***

A limited number of graduate assistantships are available for full-time PhD students. The assistantships are competitive and awarded on the basis of merit. They provide:

- A full tuition scholarship
- A \$20,000 stipend
- The potential for additional funding for summer work
- Health insurance/benefits

Graduate assistants are expected to work up to 20 hours per week.

### ***Research Assistantships***

Faculty in the Department of Epidemiology and Environmental Health and at Roswell Park Cancer Institute support students who work with them on their funded research projects. Research assistantships provide:

- A full or partial tuition scholarship
- A stipend
- Health insurance/benefits may be provided depending on the funding source

Responsibilities vary depending on the project.

## TUITION SCHOLARSHIP

PhD students who are awarded a graduate assistantship may also be eligible for a tuition scholarship.

- A University tuition scholarship is limited to a maximum of 72 credit hours (minus transfer credits); and/or up to eight semesters for PhD students. The limit also includes those semesters/credits of tuition support a student may have received while enrolled in another degree program or department at UB, regardless of whether or not those credits are applied to their current degree program.
- The tuition scholarship may not be used to offset the tuition costs associated with any course that will not be applied to the degree. A tuition scholarship does not cover courses taken as audit.
- Credit hour limits do not represent entitlements to tuition scholarship support for the specified number of credit hours. The limits refer to the total number of credit hours applied to the degree regardless of whether those credit hours consist of transfer credits, unsupported credit hours, credit supported from other sources, or any combination thereof.
- The scholarship does not cover credit hours taken during the summer semester or courses which are repeated.
- Students are responsible for all comprehensive and activity fees. These fees are not covered by the tuition scholarship. If they are covered by an outside carrier, students are responsible for waiving the University health insurance.

It is expected that all students who receive stipends and tuition scholarship awards not hold jobs outside of the University.

Students eligible for tuition scholarship must complete a **Graduate Student Scholarship Verification Form**, which can be obtained from the Graduate Program Coordinator, for the full academic year, both Fall and Spring semesters. The deadline for continuing students is early May, new students must file by mid-August. Determination of eligibility for a tuition scholarship is made each semester and is limited by funding availability. Students who are not New York State residents, but are eligible to become residents, are required to do so as soon as possible, but no later than one year after their initial appointment.

### **Student Employee Health Insurance**

Students receiving graduate assistantships are eligible to enroll in the State Student Employee Health Insurance Plan (SEHP). Domestic students who meet eligibility requirements may choose between the University's mandatory student health insurance plan or the SEHP. F1 visa holders must enroll in the state sponsored plan. Students choosing to enroll in SEHP must enroll within 30 days of the effective date of their appointment. Enrollment sessions are held each Fall semester.

#### Tuition Scholarship Checklist:

- ✓ Complete Section A of the **Graduate Student Scholarship Verification Form**, given to you by the Graduate Program Coordinator
- ✓ Indicate the number of credit hours in Section B for both Fall and Spring semesters
- ✓ **Forward to the funding supervisor to complete and sign Section C**
- ✓ Forward to the Program Coordinator within the required deadline
- ✓ Enroll in SEHP (if applicable)

## **GRADUATE STUDENT TRAVEL AWARD**

The *Robert O'Shea Student Travel Award* was established in honor of Robert O'Shea, PhD, associate professor emeritus, who served from 1977-1997 as the first Director of Graduate Studies in the Department of Epidemiology and Environmental Health.

Students requesting financial assistance to present their research at professional meetings should submit a written request to the Department's Finance Committee for a *Robert O'Shea Travel Award*. (Letters should be addressed and emailed to the attention of the current Finance Committee Chair (Dr. Jo Freudenheim)).

**\*\*\*Since funds for student travel are limited, and the travel award must be approved PRIOR to submitting an abstract, it is important to submit requests for funding well in advance of abstract submission deadlines.**

**Important:** Original receipts are required to receive reimbursement. All students should see the Secretary to the Chair *prior to incurring expenses* to discuss and review the University and Departmental policies regarding travel. The department cannot cover items such as tax, liquor, or upgrades (hotel, air, transportation).

Funding is NOT guaranteed and depends on availability of funds in the Department and the number of requests received in any one year.

#### Student Travel Request Application Checklist

- ✓ One request per student per academic year (July 1 – June 30). Maximum allowable per year:  
PhD - \$800; MS and MPH - \$400.
- ✓ In order to receive a travel award, students must present either a poster or oral presentation at that meeting.
- ✓ Presentations must be related to research performed as a student in EEH.
- ✓ Students must submit an application in writing to the Finance Committee **PRIOR** to submitting an abstract. The application must include:
  - ✓ Name
  - ✓ Co-authors
  - ✓ Title and full abstract

- ✓ Mentor name (mentor needs to co-sign the request or send support letter/email)
- ✓ Meeting details (conference, location, dates)
- ✓ Meeting information website
- ✓ List of expected expenses
- ✓ Funds can be used to cover meeting registration, transportation, hotel accommodations and per diem according to the rules/regulations set forth by the University at Buffalo.
- ✓ All presentations and posters should be acknowledged (UB EEH logo). EEH should be the primary affiliation listed (along with Roswell Park Cancer Institute (RPCI) when applicable).
- ✓ All presentations and posters must be approved by the student's faculty mentor before presenting.

A copy of the presentation or poster should be submitted to the department (e.g., 11x14 color version).

## **SAXON GRAHAM RESEARCH AWARD**

The *Saxon Graham Research Award* provides funds to support research activities undertaken toward the completion of a doctoral dissertation. In order to be eligible students must be in the PhD in Epidemiology Program and have successfully passed the general/analytic preliminary exam. Awarded funds may be applied toward research activities such as participant recruitment, clinical specimen analysis, or travel to meet with collaborators. Funds must be spent according to University at Buffalo guidelines. A lump sum of funds will not be given to the awardee. Instead, staff from the Department will work with the awardee to procure items or plan travel, as needed, and according to the awardee's proposed budget. The Department issues a Call for Applications each year.

### *Call for Applications Materials Checklist*

- ✓ Specific aims (NIH format): maximum of two single-sided pages detailing study rationale and study aims
- ✓ Biosketch (NIH format)
- ✓ Budget and budget justification: maximum of two single-sided pages detailing proposed expenditure of Award funds

## **SAXON GRAHAM AWARD**

This annual award to a student graduating with a PhD in epidemiology was established in 1997 to honor the excellent leadership provided by the late Saxon Graham, PhD, professor emeritus and chair of the Department of Epidemiology and Environmental Health from 1981 to 1991.

Eligible students are those who have defended their dissertation by Aug. 30 of the previous year. To be eligible, students must gather epidemiologic data fairly extensively during their career (primary data collection), either for dissertation or other epidemiologic purpose. Nominations come from the student's major professor, committee member or other departmental faculty. The award is for excellence as a doctoral student; the topic of dissertation should include epidemiology and the prevention of disease, and is not limited to cancer. Selection for the award is made by the department's Education Committee.

## **OTHER OPTIONS**

### ***Complete List of Scholarships, Fellowships and Awards***

<https://sphhp.buffalo.edu/epidemiology-and-environmental-health/education/financial-assistance/scholarships-fellowships-and-awards.html>

### ***UB Office of Financial Aid***

<http://financialaid.buffalo.edu/graduate/index.php>

## ADVISEMENT

All students are assigned an academic advisor to assist in planning their course schedules, and to provide guidance for meeting educational goals and career planning. The academic advisor will assist the student until all course work is completed and the student chooses a major professor to chair their PhD dissertation committee, MS thesis committee, or MPH integrative project. All administrative questions should be directed to the Graduate Program Coordinator.

Students are expected to consult with their advisor prior to registration each semester. Failure to do so could result in a student not fulfilling the requirements necessary for their anticipated degree conferral, therefore incurring additional tuition costs. Students should schedule appointments with their advisor, taking into consideration faculty's time constraints and availability, and university deadlines. Students who have not completed ALL degree requirements and submitted all necessary paperwork will not be allowed to participate in the commencement ceremony.

If for any reason a student wishes to change advisors, they must obtain permission from their selected faculty and submit a request in writing to the Director of Graduate Studies (a copy must also be sent to their selected faculty advisor). Changes will be made only with the approval of the new advisor. The department will try to accommodate all student requests.

# PROGRAM REGULATIONS

## REGISTRATION

The registration timetable, course offerings and class schedules are posted on the Student Response Center's (SRC) web site ([www.registrar.buffalo.edu](http://www.registrar.buffalo.edu)).

All students are required to consult their advisor prior to registration, and to register for a minimum of 1 credit hour each Fall and Spring semester until degree conferral according to the procedures and within the deadlines established by the Student Response Center. (A zero credit course, i.e., EEH 590 Graduate Seminar, does not fulfill the requirement for continuous registration.) This requirement includes semesters in which formal courses are taken, as well as semesters in which a student is working on their thesis/dissertation/project. Summer registration is not required unless a student has been on an official Leave of Absence in the Spring semester and intends to have their degree conferred on September 1. No credit will be allowed for work done without proper registration. It is important that students verify their registration each semester before the Add/Drop deadline. Courses dropped after the deadline will be assessed a tuition penalty.

Students who do not maintain continuous registration (without explicit approval for a leave of absence) are considered to have left the University and will be dropped from the program (see section on Leave of Absence and Re-Entry to the Program).

### **Registration Deadlines**

Continuing students may take advantage of early registration by registering in November for the Spring semester and April for the Fall semester. Registration is continuous through the last day of Add/Drop. In order to avoid a late registration penalty, continuing students must register before the University's first billing in the third week of July (for Fall) and early December (for Spring). Check the SRC website for dates.

#### Registration Checklist:

- ✓ Verify registration before the Add/Drop deadline each semester

### **Auditing Courses**

A student wishing to audit a course must officially register and pay tuition for the course. A tuition scholarship does not cover courses taken for audit. The student must also submit a written request to the instructor by the fourth week of class requesting an 'Audit' grade. The instructor's decision will be final and will be transmitted to the student in writing. A copy of the approval must also be forwarded to the department for the student's file. A student may re-register for the course at a later date and receive a grade and academic credit for work completed in the re-registered course.

### **Course Resignations**

All course resignations processed *within the official deadlines* will be indicated as officially resigned by the notation 'R' on grade reports, transcripts, and other official University documents. There are no quality points attached to an 'R' designation. Resignation from all courses should be done by filing a Request for Exception Registration. This form can be obtained from the Graduate Coordinator.

#### Course Resignation Checklist:

- ✓ Complete the **Request for Exception Registration**
- ✓ Obtain signature of course instructor(s) indicating approval of the resignation(s)
- ✓ Forward to the Program Coordinator (do not send directly to the Graduate School)

### **Requirements for Full-Time Status**

Students must be registered for a minimum of 12 credit hours each Fall and Spring semester (or a minimum of 9 credit hours per semester if appointed as a graduate, teaching or research assistant) to be considered full time.

- Full-time registration is a necessary condition of appointment for an assistantship and/or tuition scholarship.
- International students must maintain full-time registration as a condition for their student visa.

### **Certification of Full-Time Status**

Students who are required to maintain full-time status for the purpose of tuition assistantship/scholarship, loan deferral or immigrant status may be certified as full time when registered for less than 12 graduate credit hours (or 9 credit hours if appointed as a graduate, teaching or research assistant) ONLY if the following conditions have been met:

- ✓ All coursework has been completed
- ✓ A student has maintained full-time status since matriculation in the program
- ✓ Student registers for a minimum of one credit hour per semester
- ✓ A student is engaged in full-time research on their thesis/dissertation/project
- ✓ **Application to Candidacy Form** (ATC) has been completed, signed by all committee members and the Director of Graduate Studies.

Certification must be requested using the **Certification of Full-Time Status** form:

<http://grad.buffalo.edu/content/dam/www/graduate/documents/students/certfts.pdf>.

Students must be registered for the semester in which they are filing. A PHOTOCOPY of the ATC signed by the student and all committee members should be attached to the **Certification of Full-Time Status Form** and forwarded to the Program Coordinator. Do not submit the original ATC. The student should retain the original ATC to present at their proposal defense. (See section on Application to Candidacy.) It is NOT required that the proposal be defended when applying for full-time status. Attachments to the ATC are also not required at this time.

PhD students are required to file only once during their studies provided they register for the same number of credit hours each semester for which they obtained approval. If the number of credit hours changes, or if the date of degree conferral changes, the student must file a new **Certification of Full-Time Status Form** to receive continued certification. MS /MPH students can only be approved for a maximum of two semesters. If additional time is needed, the student must submit a new form along with a written request and progress update from their advisor/major professor.

#### Certification of Full-time Status Checklist:

- ✓ Complete the **Certification of Full-Time Status Form**
- ✓ Obtain signature of advisor/major professor
- ✓ Attach a PHOTOCOPY of the ATC form signed by all committee members
- ✓ Forward to the Program Coordinator (do not send directly to the Graduate School)

### **Continuous Registration**

Both full-time and part-time students must register each Fall and Spring semester for a minimum of one credit hour until all degree requirements are met (including the final defense of the thesis/dissertation/project). A zero credit course, (i.e., EEH 590 Graduate Seminar) does not fulfill the requirement for continuous registration. If a student is not on an approved leave of absence and fails to register for a semester, they are considered having left the University and must reapply to the program in order to re-enter. A **\$350 student reactivation fee** will be required to be paid by the student, prior to course registration, in order to activate their student record and remove the Service Indicator. Re-applications must include a detailed timeline for completion of the degree. The Department reserves the right to accept or deny readmission, and to determine what prior course work can be applied to the degree. Therefore, it is important to maintain continuous registration. Re-admitted students are subject to all policies in effect at the time of re-application.

- Students must register for a minimum of one credit hour in the semester following an approved leave of absence and in the semester of degree conferral. (Note: registration is not required in the Spring semester for a February 1 degree conferral and is not required in the Summer session for a September 1 degree conferral.)
- Students must be registered in the semester they defend their thesis/dissertation or present their integrative project. They may not be on a leave of absence during the semester the degree is conferred.

**NOTE:** No credit will be allowed for work done without proper registration.

## **LEAVE OF ABSENCE**

Requests for a leave of absence must be negotiated through the Director of Graduate Studies using the **Leave of Absence** form: [http://grad.buffalo.edu/content/dam/www/graduate/documents/students/pet\\_loa.pdf](http://grad.buffalo.edu/content/dam/www/graduate/documents/students/pet_loa.pdf). After review and approval from the Director of Graduate Studies, the form should be given to the Graduate Coordinator to forward to the Graduate School at least **two weeks prior** to the start of the semester in which the leave is to begin. Typically, a leave of absence is approved for a maximum of one year, but may be extended for up to one additional year if circumstances warrant.

- The Graduate School will not approve a leave of absence for 'personal reasons,' you must be specific and present strong justification for your request.
- The Graduate School will not approve a leave of absence if a student is not in good academic standing.
- Students may not petition for a leave of absence after the leave has occurred.

NOTE: If a student is not on an approved leave of absence and fails to register for a semester, they are considered to have left the University and must reapply to the program in order to re-enter. Therefore, it is important to maintain continuous registration. Re-entering students are subject to all policies in effect at the time of re-application. A \$350 **student reactivation fee** will be required to be paid by the student, prior to course registration, in order to activate their student record and remove the Service Indicator. Re-applications must also include a detailed timeline for completion of the degree. The Department reserves the right to accept or deny re-admission, and to determine what prior course work can be applied to the degree.

### Leave of Absence Checklist:

- ✓ Complete **Leave of Absence** form after approval to complete form is given by the Graduate Director. Form should include student and major advisor signatures.
- ✓ Forward form to the Program Coordinator (do not send directly to the Graduate School) at least two weeks prior to the start of the semester.

**Re-Entry in the Program after a Leave of Absence.** When a student returns from an approved leave of absence they must notify the Department in writing of their intention to be re-instated in the academic program. This request should be made a minimum of two weeks before the start of the semester. The Graduate School will automatically create a new student record allowing the student to register for courses.

### Re-entry Checklist:

- ✓ Request in writing to have status re-instated by the Department

## **GRADUATE COURSE CREDIT**

### ***Graduate Course Credit***

Graduate course credit is granted only for 500, 600, 700, 800 and 900 level courses provided proper registration requirements are met.

### ***Undergraduate Courses for Graduate Credit***

Undergraduate courses for graduate credit require prior petition and approval by the Dean of the Graduate School. Undergraduate courses may be taken by graduate students as appropriate prerequisites to their chosen field of study but may not be used to satisfy graduate program requirements or carry graduate credits. Exceptions may be made for some 400 level courses. A ***Petition for Class Registration Outside Your Primary Career*** (<http://registrar.buffalo.edu/pdfs/OutsideofCareerPetition.pdf>) must be filed at the time of registration and before the end of the Add/Drop deadline. A maximum of two undergraduate courses at the 400 level may be taken for graduate credit. All 400 level undergraduate courses that carry four or more credit hours will receive a maximum of three credit hours of graduate credit.

#### ***Undergraduate Courses for Graduate Credit Checklist:***

- ✓ Complete ***Petition for Class Registration Outside Your Primary Career***
- ✓ Be sure to sign form
- ✓ Provide justification for request
- ✓ Obtain signature of course instructor
- ✓ Include description of extra work required provided by the course instructor
- ✓ Forward to the Program Coordinator (do not send directly to the Graduate School)

## **TRANSFER CREDIT**

Each graduate program determines the applicability of previous graduate courses proposed for transfer credit. Only those graduate courses completed at an accredited or recognized institution of higher education with a minimum grade of 'B' (3.0) are eligible for consideration for transfer credit. Courses with 'S' or 'P' grades are not transferable unless the transcript specifically states they are equivalent to a 'B' or higher grade.

International transcripts with numerical grades or grades of 'excellent' or 'good' must also include an official grading scale documenting the grade is equivalent to a B or higher grade. This documentation should be obtained from the university where the courses were taken. Transcripts must also include the number of credit hours earned for each course. Credits earned in correspondence or undergraduate courses may not be transferred.

Requests for transfer credit should be made at the first opportunity after admission to the program and within the first year of study. Students requesting approval for transfer credit must complete a ***Transfer Credits Petition*** ([http://grad.buffalo.edu/content/dam/www/graduate/documents/students/pet\\_transfer.pdf](http://grad.buffalo.edu/content/dam/www/graduate/documents/students/pet_transfer.pdf)) and provide a justification of how the course(s) relate to the student's program. A copy of the course syllabus and a brief description of each course must also be provided to the Graduate Director.

A maximum of 6 credit hours of graduate work may be transferred for the MS, a maximum of 9 credit hours may be transferred for the MPH, and a maximum of 36 credit hours acquired in a relevant master's degree program may be transferred to the PhD. Thesis and dissertation guidance and research credits are not transferable. The University's 10-year time limit for each course will be considered for each course request (see section on Time Limit for Prior Coursework).



*Transfer Credit Checklist:*

- ✓ Complete **Transfer Credits Petition**
- ✓ Be sure to sign form
- ✓ Provide a brief rationale of applicability for each course
- ✓ Provide course outline(s) and description(s)
- ✓ If the request is made for courses taken at an international university, include an English translation with letter grades and credit hours, and a grading scale if no letter grades are available

**Policy on Transfer of Credit for Required Courses**

Students requesting transfer credit for the following required courses taken outside the University (EEH 501, EEH 502, EEH 505) must take and pass (B or higher grade) an examination in order to have these course credits transferred.

**Time Limit for Prior Coursework**

All coursework (whether transfer or UB credits) taken more than 10 years ago must be approved by the Director of Graduate Studies and petitioned to and approved by the Graduate School at the time of admission to the program. If these credits are included in an approved extension of time limit petition, they are valid only until the expiration date of that petition. Any further extension of the approved time limit for degree completion will require, concurrently, a repetition for approval of these older courses. Requests for approval of courses more than 10 years old must be petitioned through the Graduate School by completing the **Use of Prior Coursework** ([http://grad.buffalo.edu/content/dam/www/graduate/documents/students/pet\\_prior.pdf](http://grad.buffalo.edu/content/dam/www/graduate/documents/students/pet_prior.pdf)). Appropriate justification of how the course(s) relate to the student's program and how the student has kept current with the subject matter of each course must be provided.

*Prior Coursework Checklist:*

- ✓ Complete **Use of Prior Coursework**
- ✓ Be sure to sign form
- ✓ Attach original official transcript for courses not completed at UB
- ✓ Attach letter explaining how you have kept current the knowledge gained from the course(s)
- ✓ Attach up-to-date CV or resume
- ✓ Obtain signature of advisor/major professor
- ✓ Forward to the Program Coordinator (do not send directly to the Graduate School)

## **INFORMAL COURSES**

**Graduate School Definition**

Informal courses include registration in independent study, project, thesis, or dissertation guidance, directed or supervised reading, and directed research coursework.

Informal courses associated with final project, portfolio, thesis, research, or dissertation completion do not require the establishment of formal Independent Study Agreements. For independent studies and for directed research, an agreement should be completed and approved.

Use of undergraduate courses below the 400 level, as the criteria for creating an informal graduate course, is strictly prohibited.

Informal courses of Independent Study (EEH 599) and Directed Research (EEH 950) are offered in EEH and are intended for PhD students.

### ***Independent Study (EEH 599)***

Independent Study is intended for PhD students with special interests not satisfied through the formal course work, there is an opportunity to pursue independent study under the direction of a faculty member. This course is available as an elective when appropriate to the student's educational goals. Students must receive approval from both their supervising faculty and the Director of Graduate Studies. Students must provide their supervising faculty with a copy of the **Description of Informal Course Work Form** found at:

<http://sphhp.buffalo.edu/content/dam/sphhp/epidemiology-and-environmental-health/pdf/students/independent-study-form.pdf>

This form includes information in the checklist below. The form is signed by both student and supervising faculty and forwarded to the Director of Graduate Studies for approval a minimum of two weeks prior to the drop/add deadline. When approved, the student will be force registered into the course by the Department. A copy of the approved form is returned to the student. Doctoral students are limited to 9 credit hours of Independent Study. The limit for MS students is 6 credits. Independent Study is intended for PhD students, but MS students can petition to take EEH 599 if the need is relevant to their future career plans and they obtain permission of the course instructor and the Director of Graduate Studies.

It is the responsibility of the student and the instructor to see that all Independent Study Agreements are maintained in the student's file in EEH. Independent Study Agreements become part of the student's permanent academic record.

#### *Independent Study Checklist:*

**Description of Informal Course Work Form** should include:

- ✓ A brief summary of the goals and objectives of the independent study
- ✓ Syllabus outlining activities to be carried out such as literature review, data analysis
- ✓ Tangible mechanism for assessing student performance, e.g., test, term paper or a grant proposal
- ✓ Ability to demonstrate that the independent study includes an amount of effort equivalent to the number of credits requested, such as number of contact hours per week with faculty mentor
  
- ✓ Submit form to the Director of Graduate Studies a minimum of two weeks prior to the Add/Drop deadline

NOTE: the student will be force registered upon approval of the Director of Graduate Studies

### ***Directed Research (EEH 950)***

The purpose of Directed Research is to engage PhD students in research under the mentorship of a faculty member. This course is available as an elective when appropriate to the student's educational goals. Students must receive approval from both their supervising faculty and the Director of Graduate Studies. Students must provide their supervising faculty with a copy of the **Description of Informal Course Work Form** (please see Graduate Coordinator for form).

The form is signed by both student and supervising faculty and forwarded to the Director of Graduate Studies for approval a minimum of two weeks prior to the drop/add deadline. When approved, the student will be force registered into the course by the Department. A copy of the approved form is returned to the student. Doctoral students are limited to 6 credit hours of Directed Research.

It is the responsibility of the student and the instructor to see that all Directed Research Agreements are maintained in the student's file in EEH. Independent Study Agreements become part of the student's permanent academic record.

## **STUDENT GENERAL PROGRESS REPORTS**

All students are required to schedule a meeting with their advisor at the end of each academic year to review their academic progress and complete their Student General Progress Report. This review is designed to develop the program each student, to discuss their coursework and plans for upcoming registration, and to advise a student of any deficiency in their progress toward degree conferral. All first-year students also have their academic progress evaluated after their first semester of enrollment in the program. Students receive a copy of their progress report for their review and signature. Students who fail to meet with their advisor to complete their General Program Report will have a check stop issued and will not be able to register for the following semester.

## **ACADEMIC PROGRESS**

Students must maintain at minimum an overall 'B' average (3.0) and achieve a grade of 'B' (3.0) in each required course. **NOTE:** 'B-' (2.67) is below the minimum grade for required courses.

### ***Academic Probation***

Students who achieve a 'B-' or less grade in **one or more** required courses, who receive a grade of 'U', 'D' or 'F' in any course required for completion of the degree program, whose cumulative GPA falls below 3.0, or who indicate a lack of ability as determined by the program faculty:

- Will be notified by letter that they will be placed on *academic probation*
- Must retake the required course(s) within one year and achieve a 'B' (3.0) or higher grade
- May continue to take courses, including required courses, only with permission of the instructor

### ***Academic Dismissal***

Students receiving three grades lower than 'B-' in any courses (either required or elective), including courses which have been repeated, and/or students who have two consecutive semesters with less than an overall 'B' average (3.0) will be dismissed from the program.

Students who fail to achieve a 'B' or higher grade at the end of their probation will be dismissed from the program.

### ***Repeating Required Courses***

- Students who retake a course must officially register for it. Students are allowed only one opportunity to retake a course.
- Students are responsible for the tuition for repeated courses even if they are currently receiving a tuition scholarship.
- The grade and semester from the repeated course will be reported on the ***Application to Candidacy Form*** and will be used to certify that a student has met the minimum 'B' grade requirement.
- The initial grade will remain on the student's transcript and all courses registered for (including repeated courses) will be used in calculating the student's GPA.

## ACADEMIC INTEGRITY

Students are required to read and be familiar with the Graduate School's Academic Integrity Policies and Procedures found at <http://grad.buffalo.edu/Academics/Policies-Procedures/Academic-Integrity.html>.

Academic integrity is a fundamental university value. Through the honest completion of academic work, students sustain the integrity of the university while facilitating the university's imperative for the transmission of knowledge and culture based upon the generation of new and innovative ideas.

When an instance of suspected or alleged academic dishonesty by a student arises, it shall be resolved according to the University at Buffalo procedures described at the link above. These procedures assume that many questions of academic dishonesty will be resolved through consultation between the student and the instructor (a process known as consultative resolution, as explained below).

It is recommended that the instructor and student each consult with the department chair, school or college dean, or the Office of the Senior Vice Provost for Academic Affairs if there are any questions regarding these procedures.

### *Examples of Academic Dishonesty*

Academic dishonesty includes, but is not limited to, the following:

- **Previously submitted work.** Submitting academically required material that has been previously submitted in whole or in substantial part in another course, without prior and expressed consent of the instructor.
- **Plagiarism.** Copying or receiving material from any source and submitting that material as one's own, without acknowledging and citing the particular debts to the source (quotations, paraphrases, basic ideas), or in any other manner representing the work of another as one's own.
- **Cheating.** Soliciting and/or receiving information from, or providing information to, another student or any other unauthorized source (including electronic sources such as cellular phones or other devices), with the intent to deceive while completing an examination or individual assignment.
- **Falsification of academic materials.** Fabricating materials, notes, reports, or any forms of computer data; forging an instructor's name or initials; resubmitting an examination or assignment for reevaluation which has been altered without the instructor's authorization; or submitting a report, paper, materials, computer data, or examination (or any considerable part thereof) prepared by any person other than the student responsible for the assignment.
- **Misrepresentation of documents.** Forgery, alteration, or misuse of any University or Official document, record, or instrument of identification.
- **Confidential academic materials.** Procurement, distribution or acceptance of examinations or laboratory results without prior and expressed consent of the instructor.
- **Selling academic assignments.** No person shall sell or offer for sale to any person enrolled at the University at Buffalo any academic assignment, or any inappropriate assistance in the preparation, research, or writing of any assignment, which the seller knows, or has reason to believe, is intended for submission in fulfillment of any course or academic program requirement.
- **Purchasing academic assignments.** No person shall purchase an academic assignment intended for submission in fulfillment of any course or academic program requirement.

Additional information on plagiarism can be found at:

#### **Dartmouth College: What is Plagiarism?**

<http://www.dartmouth.edu/~sources/about/what.html>

#### **Plagiarism: What It is and How to Recognize and Avoid It**

<http://www.indiana.edu/~wts/wts/plagiarism.html>

## GRADES

All students are responsible for verifying their grade reports each semester and reporting any discrepancy to their course instructor.

### **Grade Options**

- S/U (Satisfactory/Unsatisfactory):** students electing to receive an 'S/U' grade must inform the instructor in writing by the fourth week of the semester, or the letter grade system will prevail. If the instructor approves the request, a copy of the approval must be sent to the Department for the student's file. An 'S' grade will be awarded only in those instances where a student's letter grade would be 'C' or better.
- S:** Not allowed for required courses. 'S' grades are assigned for thesis/dissertation guidance, MPH field training and MPH integrative project.
- N:** Denotes an **audit** grade.
- R:** Indicates the student officially **resigned** from the course within the official University deadline. There are no quality points attached to an 'R' designation.
- L:** May be assigned for thesis/dissertation guidance or integrative project where **continuing work** is to be indicated instead of a final grade. 'L' grades automatically convert to 'S' grades upon degree conferral.
- J:** Denotes an **invalid grade** (i.e., no grade submitted). Students should immediately contact the instructor to validate their grade or the 'J' will default to an 'F' grade. Students will not be approved for degree conferral with outstanding 'J' grades on their transcript.

### **An Incomplete Grades (I)**

- May be assigned only when the student has been unable to complete all the assigned projects and/or examinations in a course due to illness or other unforeseeable and compelling circumstance. Such circumstance must be communicated to the instructor as soon as known, but no later than the last day of class of the semester during which the course is taken.
- Cannot be assigned when a student has not attended the class.
- Is not an option for students who have not satisfactorily completed other academic requirements of the course.
- Cannot be assigned for thesis/dissertation guidance/integrative project.

If an 'I' is assigned, a letter grade must be assigned within two semesters (May 31 of the following year for the Spring semester, August 31 of the following year for the summer semester, and December 31 of the following year for the Fall semester.) If the course requirements are not completed by the deadline, the 'Incomplete' will automatically default to an 'Unsatisfactory' 'U' grade.

Individual instructors may set their own conditions for removing 'I' grades providing the time limit is not longer than specified by the University. Each instructor must clearly state such policy if it differs from that of the University. If there is a valid reason for waiving the deadline for removing an 'Incomplete' grade, the student may petition the Graduate School prior to the deadline using the **Extension of I/U Completion Deadline** ([http://grad.buffalo.edu/content/dam/www/graduate/documents/students/pet\\_iu.pdf](http://grad.buffalo.edu/content/dam/www/graduate/documents/students/pet_iu.pdf)).

#### Incomplete Grade Checklist:

- ✓ Be sure to verify the change of grade has been made on your transcript

## NOTICE OF NON-DISCRIMINATION

The University at Buffalo is committed to ensuring access to its programs and activities. The entire notice of non-discrimination can be viewed at: <http://affirmativeaction.buffalo.edu/about.htm>.

## **ABSTRACT SUBMISSION TO PROFESSIONAL MEETINGS**

Students intending to submit abstracts to professional meetings must obtain written approval from their advisor PRIOR to submission. All abstracts must include a full citation of authorship.

## **COMMENCEMENT**

In order to participate in the commencement ceremony, students must have completed ALL degree requirements and submitted all necessary paperwork by the required. Students who do not complete within the time limits will be eligible to participate in the following year, once they have completed the requirements (i.e., September and February degree conferral students walk in the following June commencement ceremony).

**MASTER OF PUBLIC HEALTH  
(MPH)**

# MASTER OF PUBLIC HEALTH (MPH)

## DEGREE REQUIREMENTS

The MPH degree concentrations require a minimum of **47 credit hours for the Epidemiology MPH, 45 credit hours for the Environmental Health MPH, and 43 credit hours for the Health Services Administration MPH** (33 of these credits for each concentration must be from UB).

Up to 6 credits may be waived and up to 9 credits may be transferred based on previously taken graduate coursework. Regardless of any waivers/substitutions/transfers, a minimum of 43 credit hours must be completed.

Students must maintain a minimum overall GPA of 3.0 and a minimum grade of 'B' (3.0) in all required courses. Note: 'B-' (2.67) is below the minimum grade for **required courses**.

### ***Required Courses for All MPH Concentrations***

- CHB 501 Study of Health Behavior (3 credit)
- EEH 501 Principles of Epidemiology (4 credits)
- EEH 505 Application of Biostatistics to Epidemiology I (4 credits) for EPI, EH, and HSA concentrations, or STA 527 Introduction to Medical Statistics (4 credits) for HSA concentration
- EEH 507 Introduction to Health Care Organization (3 credits)
- EEH 530 Administrative Theory and Practice for Public Health Practitioners (3 credits)
- EEH 535 Biological Basis of Public Health (3 credits)
- EEH 549 Environmental Health (3 credits)

### Waiver Requests

With relevant prior experience and/or graduate education, you may be able to request waivers for EEH 535 Biological Basis of Public Health and/or EEH 544 Field Training. See website for further information:

<http://sphhp.buffalo.edu/epidemiology-and-environmental-health/education/epidemiology-mph/requirements-and-curriculum/waiver-requests.html>

CREDITS FOR REQUIRED COURSES FOR ALL CONCENTRATIONS = 23 CREDITS

### Public Health Seminar

- EEH 591 Public Health Seminar (0 Credits)

The objectives of the seminar series are to expose MPH students to current, practice oriented public health topics, meet practicing public health professionals and become familiar with practice sites students can consider in selecting a field training experience site.

The seminar series consists of sessions led by public health practitioners or other professionals who provide presentations relevant to the practice of public health. There is no proscribed text or bibliography for the course. Presenters may, however, provide material as appropriate for distribution to students.

EEH 591 Public Health Seminar is a required course for:

- All full-time students for two academic years or 4 semesters
- Part-time students and students completing two semesters of EEH 591 can view presentations in class or online.

Students must register for and attend the weekly public health seminars. Grading is "Satisfactory/Unsatisfactory" and based on attendance. You can miss up to 2 of the EEH 591 seminars entirely and you can substitute for an additional 2 of the EEH 591 seminars through attending other seminars offered at the School of Public Health and Health Professions (SPHHP), Roswell Park Cancer Institute (RPCI), or the Research Institute on Addictions (RIA) or by attendance at the annual meeting of the American Public Health Association (APHA; qualifies as substituting for 1 seminar). Only these venues are acceptable. When you attend a seminar at one of these venues and want your attendance at the seminar to substitute for an EEH 591 seminar, complete the form for 'Substitute Seminar' under 'Assignments' in UBlearns.



If you are a part-time student, or have already taken two semesters of EEH 591, then you can choose either being present in class or viewing the seminars on UBlerns. Otherwise, it is expected that you will be present in class.

CREDITS FOR REQUIRED PUBLIC HEALTH SEMINAR = 0 CREDITS

In addition to the above, requirements vary based on the concentration. Concentration specific degree requirements are noted in the following pages.

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## *EPIDEMIOLOGY MPH CONCENTRATION*

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### ***Required Epidemiology MPH Concentration Field Training and Integrative Project***

- EEH 544 MPH Field Training (3 credits)
- EEH 630 MPH Integrative Project (required to take a minimum of 2 credits but can take up to 3 credits)

CREDITS FOR FIELD TRAINING AND INTEGRATIVE PROJECT = 5 TO 6 CREDITS

### ***Epidemiology MPH Concentration Courses***

#### *Required Courses:*

- EEH 502 Advanced Methodology (3 credits)
- EEH 506 Application of Biostatistics to Epidemiology II (4 credits)
- EEH 513 Epidemiology of Infectious Diseases (3 credits)

#### *Elective Course Offerings (choose 3 courses):*

- EEH 511 Nutritional Epidemiology (biennial)
- EEH 515 Epidemiology of Cardiovascular Disease (annual)
- EEH 519 Principles of Measurement in Public Health (annual)
- EEH 521 Special Topics, Obesity Epidemiology (annual)
- EEH 527 Cancer Epidemiology (annual)
- EEH 534 Global Health (annual)
- EEH 544 MPH Field Training (additional 3 credits beyond the required 3 credits) (annual)
- EEH 551 Epidemiologic Applications of Environmental Health (annual)
- EEH 618 Perinatal Epidemiology (biennial)
- EEH 620 Epidemics and Outbreaks (biennial)

CREDITS FOR EPIDEMIOLOGY CONCENTRATION COURSES = 19 CREDITS

**NOTE FOR ALL MPH STUDENTS:** Students can petition to take courses outside their concentration area or at the PhD level if the course is relevant to their future career plans and they obtain permission of the course instructor and the Director of Graduate Studies

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## **ENVIRONMENTAL HEALTH MPH CONCENTRATION**

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### **Required Environmental Health MPH Concentration Field Training and Integrative Project**

- EEH 544 MPH Field Training (3 credits)
- EEH 630 MPH Integrative Project (required to take 3 credits)

CREDITS FOR FIELD TRAINING AND INTEGRATIVE PROJECT = 6 CREDITS

### **Environmental Health MPH Concentration Courses**

#### Required Courses:

- EEH 649 Advanced Environmental Health Sciences (3 credits)
- PMY 626 Toxicology Principles and Practice (2 credits)
- PMY 627 Toxicology at Target Organs (2 credits)

#### Elective Course Offerings (choose 3 courses):

- CIE 563 Air Pollution \*
- CIE 569 Hazardous Waste Management \*
- EEH 534 Global Health (annual)
- EEH 544 MPH Field Training (additional 3 credits beyond the required 3 credits) (annual)
- EEH 551 Epidemiologic Applications of Environmental Health (annual)
- EEH 615 Geographic Medicine (annual)
- GEO 506 Geographical Information Systems \*
- URP 604 Community Food Systems Planning \*
- URP 605 Built Environment and Health \*

CREDITS FOR ENVIRONMENTAL HEALTH MPH CONCENTRATION COURSES = 16 CREDITS

\* Check current class schedule for course offerings (frequency and semester) and credits per course.

**NOTE FOR ALL MPH STUDENTS:** Students can petition to take courses outside their concentration area or at the PhD level if the course is relevant to their future career plans and they obtain permission of the course instructor and the Director of Graduate Studies

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**GLOBAL ENVIRONMENTAL HEALTH TRACK  
WITHIN THE ENVIRONMENTAL HEALTH MPH CONCENTRATION**

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**Required Global Environmental Health Track MPH Concentration Field Training and Integrative Project**

- EEH 544 MPH Field Training (3 credits)
- EEH 630 MPH Integrative Project (required to take 3 credits)

CREDITS FOR FIELD TRAINING AND INTEGRATIVE PROJECT = 6 CREDITS

**Global Environmental Health Track MPH Concentration Courses**

Required Courses:

- EEH 534 Global Health (3 credits)
- EEH 649 Advanced Environmental Health Sciences (3 credits)
- PMY 626 Toxicology Principles and Practice (2 credits)

Elective Course Offerings:

Students are required to take a total of 8 elective credits but must select at least 1 elective course from global population health and 1 elective course from global environmental health topics.

*Global Population Health:*

- APY 575 Gender and the Politics of Health in Africa \*
- CHB 500 Health for Refugee Populations \*
- CHB 625 Health Disparities \*
- GEO 512 Geography of Health \*

*Global Environmental Health Topics:*

- CIE 563 Air Pollution \*
- EEH 513 Epidemiology of Infectious Diseases (annual)
- EEH 522 Selected Topics, Water, Sanitation, and Hygiene in Low- and Middle-income Settings

Additional Electives:

- EEH 544 MPH Field Training (additional credits beyond the required 3 credits) (annual)
- EEH 551 Epidemiologic Applications of Environmental Health (annual)
- EEH 620 Epidemics and Outbreaks (biennial)
- PMY 627 Toxicology at Target Organs (annual)
- URP 605 Built Environment and Health \*

CREDITS FOR GLOBAL ENVIRONMENTAL HEALTH TRACK MPH CONCENTRATION COURSES = 16 CREDITS

\* Check current class schedule for course offerings (frequency and semester) and credits per course.

**NOTE FOR ALL MPH STUDENTS:** Students can petition to take courses outside their concentration area or at the PhD level if the course is relevant to their future career plans and they obtain permission of the course instructor and the Director of Graduate Studies

**HEALTH SERVICES ADMINISTRATION MPH CONCENTRATION**

**Required Health Services Administration MPH Concentration Field Training and Integrative Project**

- EEH 544 MPH Field Training (3 credits)
- EEH 630 MPH Integrative Project (required to take a minimum of 2 credits but can take up to 3 credits)

CREDITS FOR FIELD TRAINING AND INTEGRATIVE PROJECT = 5 TO 6 CREDITS

**Health Services Administration MPH Concentration Courses**

Required Courses:

- CHB 523 Introduction to Program Planning and Evaluation (3 credits)
- EEH 543 Public Health Practice (3 credits)

Elective Course Offerings (choose 3 courses):

- EEH 522 Selected Topics, Evidence Based Decision Making in Health Services (annual)
- EEH 536 Management for Public Health Professionals (annual)
- EEH 537 Public Health Law (annual)
- EEH 539 Introduction to Health Economics (annual)
- EEH 542 Health Policy in the United States (annual)
- EEH 544 MPH Field Training (additional 3 credits beyond the required 3 credits) (annual)
- EEH 632 Strategic and Operations Management in Health Care Systems (annual)

CREDITS FOR HEALTH SERVICES ADMINISTRATION MPH CONCENTRATION COURSES = 15 CREDITS

**NOTE FOR ALL MPH STUDENTS:** Students can petition to take courses outside their concentration area or at the PhD level if the course is relevant to their future career plans and they obtain permission of the course instructor and the Director of Graduate Studies

Example: Two Year Course Sequence by Concentration Area

<b>EPIDEMIOLOGY (47 credits)*</b>	
<b>Year 1: Fall Semester</b>	<b>Year 1: Spring Semester</b>
CHB 501 Study of Health Behavior (3) EEH 501 Principles of Epidemiology (4) EEH 505 Application of Biostatistics to Epidemiology I (4) EEH 507 Introduction to Health Care Organization (3) EEH 591 Public Health Seminar (0) <p style="text-align: right;">Total credits=14</p>	EEH 502 Advanced Methodology (3) EEH 506 Application of Biostatistics to Epidemiology II (4) EEH 549 Environmental Health (3) EEH 591 Public Health Seminar (0) One Concentration Course Elective (3) <p style="text-align: right;">Total credits=13</p>
<b>Year 2: Fall Semester</b>	<b>Year 2: Spring Semester</b>
EEH 513 Epidemiology of Infectious Diseases (3) EEH 544 Field Training (3) EEH 591 Public Health Seminar (0) One Concentration Course Elective (3) <p style="text-align: right;">Total credits=9</p>	EEH 530 Administrative Theory and Practice for Public Health Practitioners (3) EEH 535 Biological Basis of Public Health (3) EEH 591 Public Health Seminar (0) EEH 630 Integrative Project (2) One Concentration Course Elective (3) Integrative Project Presentation <p style="text-align: right;">Total credits=11</p>

<b>ENVIRONMENTAL HEALTH (45 credits)*</b>	
<b>Year 1: Fall Semester</b>	<b>Year 1: Spring Semester</b>
CHB 501 Study of Health Behavior (3) EEH 501 Principles of Epidemiology (4) EEH 505 Application of Biostatistics to Epidemiology I (4) EEH 507 Introduction to Health Care Organization (3) EEH 591 Public Health Seminar (0)  <p style="text-align: right;">Total credits=14</p>	EEH 530 Administrative Theory and Practice for Public Health Practitioners (3) EEH 535 Biological Basis of Public Health (3) EEH 549 Environmental Health (3) EEH 591 Public Health Seminar (0)  One Concentration Course Elective (3)  <p style="text-align: right;">Total credits=12</p>
<b>Year 2: Fall Semester</b>	<b>Year 2: Spring Semester</b>
EEH 544 Field Training (3) EEH 591 Public Health Seminar (0) PMY 626 Toxicology Principals and Practice (2) PMY 627 Toxicology at Target Organs (2)  One Concentration Course Elective (3)  <p style="text-align: right;">Total credits=10</p>	EEH 591 Public Health Seminar (0) EEH 630 Integrative Project (3) EEH 649 Advanced Environmental Health Sciences (3)  One Concentration Course Elective (3)  Integrative Project Presentation  <p style="text-align: right;">Total credits=9</p>

<b>GLOBAL ENVIRONMENTAL HEALTH TRACK (45 credits)*</b>	
<b>Year 1: Fall Semester</b>	<b>Year 1: Spring Semester</b>
CHB 501 Study of Health Behavior (3) EEH 501 Principles of Epidemiology (4) EEH 505 Application of Biostatistics to Epidemiology I (4) EEH 507 Introduction to Health Care Organization (3) EEH 591 Public Health Seminar (0)  <p style="text-align: right;">Total credits=14</p>	EEH 530 Administrative Theory and Practice for Public Health Practitioners (3) EEH 535 Biological Basis of Public Health (3) EEH 549 Environmental Health (3) EEH 591 Public Health Seminar (0)  One Concentration Course Elective from Global Population Health or Global Environmental Health Topics (2 to 4)  <p style="text-align: right;">Total credits=11 to 13</p>
<b>Year 2: Fall Semester</b>	<b>Year 2: Spring Semester</b>
EEH 534 Global Health (3) EEH 544 Field Training (3) EEH 591 Public Health Seminar (0) PMY 626 Toxicology Principals and Practice (2)  One Concentration Course Elective from Global Population Health or Global Environmental Health Topics (2 to 4)  <p style="text-align: right;">Total credits=10 to 12</p>	EEH 591 Public Health Seminar (0) EEH 630 Integrative Project (3) EEH 649 Advanced Environmental Health Sciences (3)  One Concentration Course Elective (2 to 4) – if needed  Integrative Project Presentation  <p style="text-align: right;">Total credits=8 to 10</p>

<b>HEALTH SERVICES ADMINISTRATION (43 credits)*</b>	
<b>Year 1: Fall Semester</b>	<b>Year 1: Spring Semester</b>
CHB 501 Study of Health Behavior (3) EEH 501 Principles of Epidemiology (4) EEH 505 Application of Biostatistics to Epidemiology I (4), or STA 527 Introduction to Medical Statistics (4) EEH 507 Introduction to Health Care Organization (3) EEH 591 Public Health Seminar (0) <p style="text-align: right;">Total credits=14</p>	EEH 530 Administrative Theory and Practice for Public Health Practitioners (3) EEH 535 Biological Basis of Public Health (3) EEH 543 Public Health Practice (3) EEH 549 Environmental Health (3) EEH 591 Public Health Seminar (0) <p style="text-align: right;">Total credits=12</p>
<b>Year 2: Fall Semester</b>	<b>Year 2: Spring Semester</b>
CHB 523 Introduction to Program Planning & Evaluation (3) EEH 544 Field Training (3) EEH 591 Public Health Seminar (0)  Two Concentration Course Electives (6) <p style="text-align: right;">Total credits=12</p>	EEH 591 Public Health Seminar (0) EEH 630 Integrative Project (2)  One Concentration Course Elective (3)  Integrative Project Presentation! <p style="text-align: right;">Total credits=5</p>

\* **NOTE:** Field training hours may be completed throughout the course of the program, including summer and winter sessions. Three credits of Field Training are required but an additional 3 credits of Field Training can be completed and counted as a concentration area elective. Field Training forms are submitted electronically through online system (link shown in "Sources of Information" at the end of the Handbook).

#### **Public Health Seminar**

EEH 591 Public Health Seminar is required for all full- and part-time students each semester for two academic years. The course will be assigned an 'S/U' grade. Students are allowed two unexcused absences per semester.

#### **Integrative Project Overview**

In addition to the required and elective courses, all MPH students must complete an integrative project (EEH 630). The project will take the form of a written document completed during the concluding semester of the students' program. Students are encouraged to work on their project throughout the course of their program. Examples of integrative projects include analysis of a public health problem, a secondary data analysis, designing a program implementation, or writing a research grant, community service grant, or program evaluation proposal. Students are required to have a project committee for their integrative project.

#### **Project Committee**

With the advice of their advisor the student will select a project committee which includes a Major Professor who is a member or associate member of the UB Graduate Faculty whose primary geographic appointment is in the Department of EEH or Roswell Park Cancer Institute (RPCI) Department of Cancer Prevention and Control; and one additional Committee Member who holds the rank of assistant, associate or full professor at the University to supervise work on their integrative project. Faculty other than the Major Professor do not have to qualify as Graduate Faculty. A list of eligible Graduate Faculty is available at the Graduate School website:

[www.grad.buffalo.edu/academics/facultyroster/roster.cgi](http://www.grad.buffalo.edu/academics/facultyroster/roster.cgi).

Committee members of the integrative project should be involved throughout the design and conduct of the original project. The student is encouraged to meet frequently with their Committee. Faculty who geographically leave UB may remain on a student's committee for up to one year as a Committee Member, but not as Major Professor. If the Major Professor is no longer a full-time geographic EEH or RPCI Cancer Prevention and Control faculty member, the Major Professor must be replaced, however they may remain on the committee as a Committee Member for up to one year. Students could petition the Education Committee to have the faculty member remain in exceptional circumstances. The student would be required to have the unanimous vote of the Education Committee.

### ***Integrative Project Proposal***

Students submit a 150-word summary of their *proposed* integrative project. The summary must be approved and signed by the student's Major Professor and submitted to the Director of Graduate Studies by October 1 or March 1 of the semester in which they are registered for the integrative project EEH 630.

### ***Application to Candidacy***

The ***Application to Candidacy (ATC)*** is a document that includes a summary of courses to be applied toward a degree. Must be done in the second year (3<sup>rd</sup> semester). The form is available at:

<http://grad.buffalo.edu/content/dam/www/graduate/documents/students/atc.pdf>.

Once the ATC has been approved, a student is not required to enroll for 12 credits to be considered full time provided they submit a ***Certification of Full-Time Status Form***. (See section on Certification of Full-Time Status).

#### *Application to Candidacy Checklist:*

- ✓ Complete (type) Parts 1-7

Part 1: Degree Program: Master of Public Health and concentration area

Part 2 and 3: Fill out if applicable

Part 4: All courses must be listed in chronological order. If an intended course(s) and/or credit hours change, the student must complete a Change Expected Conferral Date/Amend ATC).

[http://grad.buffalo.edu/content/dam/www/graduate/documents/students/pet\\_amend.pdf](http://grad.buffalo.edu/content/dam/www/graduate/documents/students/pet_amend.pdf)

Part 5: If you have taken courses which will not be applied to the MPH degree, attach an unofficial UB transcript and cross out course(s) which will not be applied. Course credits must total 47, 45, or 43 depending on concentration (including waived, transferred and future credits).

Part 6: All courses must be listed in chronological order. If transcripts were submitted at the time of application to the program, the Department will attach.

Part 7: BE SURE TO SIGN YOUR ATC! Student signature and signatures of the Major Professor and all Committee Members are required (the student is responsible for obtaining signatures). Original signatures are required. ATCs submitted without all signatures will be returned to the student.

NOTE: Name and signatures for the Associate Dean for Academic and Student Affairs and the Director of Graduate Studies are completed by the Department.

Submit form to the Program Coordinator for Graduate Director's signature.

- ✓ Submit the completed ATC to the department **no later than FOUR weeks before the Graduate School's official deadline.**

- ✓ **Department deadlines are:**

September 1 for a February degree conferral

February 1 for a June degree conferral

June 1 for a September degree conferral

**Read Carefully:** The Application to Candidacy (ATC) form must be submitted to the Department a minimum of FOUR weeks prior to the Graduate School deadline. This will allow time to be reviewed and approved by the Director of Graduate Studies and Associate Dean for Academic and Student Affairs before it is forwarded to the Graduate School. Incomplete ATCs will be returned to the student. ATCs received after the Department deadline may result in delay of degree conferral.



### ***Integrative Project Abstract***

All students must submit a 150 word abstract of their completed integrative project at the time of their presentation. The abstract must be submitted with the M-Form (see below).

### ***Integrative Project Oral Presentation and Defense***

In addition to their written integrative project, students do an oral presentation of their project on a date scheduled at the end of the semester. The integrative project defense consists of a 15 minute oral presentation followed by 5 minutes of questions. The presentation summarizes the student's integrative project.

### ***M-Form***

The ***M-Form*** (Multi-Purpose Form) is prepared by the Graduate Program Coordinator and is brought by the student to the presentation of their integrative project. This form is signed by the Major Professor and Committee Member(s) after successful presentation of the integrative project, and submitted to the Director of Graduate Studies along with a copy of the final abstract and integrative project. No ***M-Forms*** will be signed by the Director and forwarded to the Graduate School without the required documents. The ***M-Form*** must be received at the Graduate School by the official deadline posted on the Graduate School website:

[www.grad.buffalo.edu/Academics/Academic-Deadlines.html](http://www.grad.buffalo.edu/Academics/Academic-Deadlines.html).

An electronic copy of the integrative project must also be submitted to the Graduate Program Coordinator.

#### ***M-Form Checklist:***

- ✓ Notify the Graduate Program Coordinator of the title for the integrative project (a copy of the prepared ***M-Form*** and ***Graduation Information Form*** will be placed in the student's mailbox)
- ✓ Bring the following to the integrative project presentation:
  1. ***M-Form***
  2. Abstract of the integrative project
  3. Copy of integrative project
  4. ***Graduation Information Form***

### ***Graduation Information Form***

The ***Graduation Information Form*** should be completed and brought to the integrative project presentation. A copy will be provided at the integrative project presentation.

### ***Research and Professional Conduct***

The diversity of faculty interest areas allows for many opportunities for research. All graduate students are expected to be actively involved in research throughout their educational experience. The University and department hold standards for professional conduct (see Warning on Plagiarism).

### ***Abstract Submission to Professional Meetings***

Students intending to submit abstracts to professional meetings must obtain written approval from their advisor PRIOR to submission. All abstracts must include a full citation of authorship.

### ***Time Limit to Complete the Degree***

The time limit for obtaining the MPH degree is FOUR years from the date of first registration in the degree program, excluding official leaves of absence, regardless of full- or part-time status.

### ***Extension of Time to Complete the Degree***

Students unable to complete the MPH program within the time limit must petition the Graduate School for an extension of time to complete the degree provided there exists adequate reason to justify such a request. The Graduate School will not approve an extension for 'personal reasons,' you must be specific and provide strong justification for your request. Students must provide a detailed description of work completed to date, a detailed month-to-month timeline

for completion of the project/degree, and a written endorsement from the advisor/major professor. Requests for extensions must be made at least two weeks prior to the start of the semester. The ***Extension of Time Limit for Degree Completion form*** is available at the following link:

[http://grad.buffalo.edu/content/dam/www/graduate/documents/students/pet\\_extension.pdf](http://grad.buffalo.edu/content/dam/www/graduate/documents/students/pet_extension.pdf).

*Extension of Time Checklist:*

- ✓ Complete ***Extension of Time Limit for Degree Completion form***
- ✓ Be sure to sign form and obtain signature of advisor/major professor
- ✓ Attach written statement indicating:
  - Cause of the delay
  - Detailed description of work completed thus far
  - Detailed month-to-month plan of work to be completed
- ✓ Attach written endorsement from advisor/major professor
- ✓ Forward to the Program Coordinator (do not send directly to the Graduate School)

***Checklist for MPH Degree Conferral***

- ❑ 43-47 graduate credit hours, depending on the concentration, completed with an overall GPA of 'B' (3.0) average.
- ❑ A minimum grade of 'B' (3.0) in all required course work.
- ❑ Registration and attendance at the public health seminars (EEH 591).
- ❑ Continuous registration from the date of matriculation (unless on an approved leave of absence).
- ❑ If beyond the four-year time limit for completion of degree, an approved ***Extension of Time Limit for Degree Completion*** is on file in the Graduate School.
- ❑ An approved ***Application to Candidacy*** is on file in the Graduate School.
- ❑ Review unofficial transcript and address any 'I' or 'J' grades.
- ❑ Successful completion and presentation of the integrative project.
- ❑ Abstract of integrative project and ***M-Form*** are received by the Graduate School within the established deadlines (the Graduate School does not require copies of a project).
- ❑ Hard copy of the integrative project and ***Graduation Information Form*** submitted to the Department. An electronic copy must be submitted to the MPH Coordinator.

<b>Degree Conferral Timetable</b>			
<b>For Degree Conferral on:</b>	<b>February 1</b>	<b>June 15</b>	<b>September 1</b>
Application to Candidacy due to the Department	<b>September 1</b>	<b>February 1</b>	<b>June 1</b>
Application to Candidacy due at the Graduate School	<b>October 1*</b>	<b>March 1*</b>	<b>July 1*</b>
ALL required materials must be received in the Graduate School by the official deadline posted on the Graduate School website ( <a href="http://www.grad.buffalo.edu/Academics/Academic-Deadlines.html">www.grad.buffalo.edu/Academics/Academic-Deadlines.html</a> )			

\* **Read Carefully:** The Application to Candidacy (ATC) form must be submitted to the Department a minimum of FOUR weeks before it is due at the Graduate School. This will allow time to be reviewed and approved by the Director of Graduate Studies and the Associate Dean for Academic and Student Affairs before it is forwarded to the Graduate School. Incomplete ATCs will be returned to the student. ATCs received after the Department deadline may result in delay of degree conferral.

## **ACCELERATED AND COMBINED MPH DEGREE PROGRAMS**

### ***Accelerated MPH***

Please refer to the website for information on the Accelerated MPH in Epidemiology, and the Accelerated MPH in Health Services Administration. (There is currently no Accelerated MPH for Environmental Health.)

#### ***Example: One Year Course Sequence for Accelerated Epidemiology MPH***

<http://sphhp.buffalo.edu/epidemiology-and-environmental-health/education/epidemiology-mph/one-year-accelerated-mph.html>

<b>EPIDEMIOLOGY (47 credits)*</b>	
<b>Year 1: Fall Semester</b>	<b>Year 1: Spring Semester</b>
CHB 501 Study of Health Behavior (3) EEH 501 Principles of Epidemiology (4) EEH 505 Application of Biostatistics to Epidemiology I (4) EEH 507 Introduction to Health Care Organization (3) EEH 513 Epidemiology of Infectious Diseases (3) EEH 591 Public Health Seminar (0)  One Concentration Course Elective (3)  Total credits=20	EEH 502 Advanced Methodology (3) EEH 506 Application of Biostatistics to Epidemiology II (4) EEH 530 Administrative Theory and Practice for Public Health Practitioners (3) EEH 535 Biological Basis of Public Health (3) EEH 549 Environmental Health (3) EEH 591 Public Health Seminar (0)  Two Concentration Course Elective (6)  Total credits=22
<b>Summer Session</b>	
EEH 544 Field Training (3) EEH 630 Integrative Project (2)  Total credits=5	

#### ***Example: One Year Course Sequence for Accelerated Health Services Administration MPH***

<http://sphhp.buffalo.edu/epidemiology-and-environmental-health/education/health-services-administration-mph/one-year-accelerated-mph.html>

<b>HEALTH SERVICES ADMINISTRATION (43 credits)*</b>	
<b>Year 1: Fall Semester</b>	<b>Year 1: Spring Semester</b>
CHB 501 Study of Health Behavior (3) CHB 523 Introduction to Program Planning and Evaluation (3) EEH 501 Principles of Epidemiology (4) EEH 505 Application of Biostatistics to Epidemiology I (4) or STA 527 Introduction to Medical Statistics (4) EEH 507 Introduction to Health Care Organization (3) EEH 591 Public Health Seminar (0)  Total credits=17	EEH 530 Administrative Theory and Practice for Public Health Practitioners (3) EEH 535 Biological Basis of Public Health (3) EEH 543 Public Health Practice (3) EEH 549 Environmental Health (3) EEH 591 Public Health Seminar (0)  Three Concentration Course Elective (9)  Total credits=21
<b>Summer Session</b>	
EEH 544 Field Training (3) EEH 630 Integrative Project (2)  Total credits=5	

\* **NOTE: Field training** hours may be completed throughout the course of the program, including summer and winter sessions. Three credits of Field Training are required but an additional 3 credits of Field Training can be completed and counted as a concentration area elective. Field Training forms are submitted electronically through online system (link shown in "Sources of Information" at the end of the Handbook).

### ***Combined MPH Degree Programs***

It is possible for graduate students to complete a program leading to two master's degrees at the same time. The integrity of each degree must be observed by completing a minimum of 24 credit hours uniquely applied for each degree. No more than 6 credit hours may be applied to both programs. In some programs, the curriculum may contain required courses that are common to both programs. Such required courses may be counted for both degree programs. In cases where one or more specific courses are explicitly required by both programs (i.e., not merely as acceptable electives), such courses are considered "shared courses" and will be the first courses counted toward the 6 credit hour limit. For more information regarding individual dual degree programs, please see the EEH website.

Please refer to the website under each concentration for information on the combined degree programs:

For the Health Services Administration MPH, the following combined degrees are offered:

MPH/JD, MPH/MBA, MPH/MSW, MPH/MD, and MPH/PharmD, and BS/MPH.

For the Epidemiology MPH, the following combined degrees are offered:

BS/MPH, MPH/MD, and MPH/PharmD.

For the Environmental Health MPH the following combined degree is offered:

MPH/MD.

# **MPH COMPETENCIES**

Found at <http://sphhp.buffalo.edu/content/dam/sphhp/home/pdfs/MPH-Competencies.pdf>

## ***MPH Core Competencies***

- C1. Calculate and interpret epidemiologic measures of disease frequency, risk, and association, and apply these measures appropriately in basic epidemiologic study designs commonly used in public health settings for descriptive and inferential problem solving. (EEH 501)
- C2. Describe the components and major operational features of the U.S. health care delivery system from a population perspective, within a historical context of the technical, economic, political and social forces that continue to propel change. (EEH 507)
- C3. Through the acquisition of basic knowledge in the biological sciences, evaluate and interpret the influence that the biological sciences have on population-based health and public health programs and services. (EEH 535)
- C4. Explain the process of risk assessment and its utilization in decision-making to prevent and control environmental hazards, and describe and evaluate causes, effects and amelioration of environmental health problems from an ecological or systems perspective. (EEH 549)
- C5. Through an understanding of the behavioral, social and cultural factors related to individual and population health and health disparities over the life course, better develop, administer and evaluate programs and policies in public health and health services directed at promoting and sustaining healthy environments and healthy lives for individuals and populations. (CHB 501)
- C6. Recognize the demonstration of public health competencies through presentations given by practicing public health professionals in core public health areas: biostatistics, community health and health behavior, environmental health, epidemiology, and health services administration. (EEH 591)
- C7. Demonstrate broad knowledge of the interactions between community and behavioral, biological, cultural, environmental, healthcare, policy, and socioeconomic factors as influences on public health. (CHB 501, EEH 530)
- C8. Demonstrate broad knowledge of the utility of and challenges to implementation of interventions that impact public health and healthcare delivery. (CHB 501, EEH 591)
- C9. Understand current public health issues and topics locally, regionally, nationally and globally; and understand and apply core and cross-cutting public health skills needed for success in a public health career. (EEH 591)
- C10. Apply ethical principles to professional practice. (CHB 501, EEH 530)
- C11. Understand and utilize the key management competencies required of public health program leaders to design, direct, and develop sound operational methods to implement evidenced based public health programs. (EEH 530)
- C12. Describe basic concepts of probability, random variation and commonly used statistical probability distributions. (STA 527, or STA 521, or EEH 505)

### ***Biostatistics (BIOS) Concentration Competencies***

- BIOS CS1. Describe the roles biostatistics serves in the discipline of public health. (STA 521)
- BIOS CS2. Describe preferred methodological alternatives to commonly used statistical methods when assumptions are not met. (STA 503, STA 504)
- BIOS CS3. Distinguish among the different measurement scales and the implications for selection of statistical methods to be used based on these distinctions. (STA 503, STA 504)
- BIOS CS4. Apply descriptive techniques commonly used to summarize public health data. (STA 503, STA 504)
- BIOS CS5. Apply common statistical methods for inference. (STA 503, STA 504)
- BIOS CS6. Apply descriptive and inferential methodologies according to the type of study design for answering a particular research question. (STA 503, STA 504)
- BIOS CS7. Apply basic informatics techniques with vital statistics and public health records in the description of public health characteristics and in public health research and evaluation. (STA 521)
- BIOS CS8. Interpret results of statistical analyses found in public health studies. (STA 503, STA 504)
- BIOS CS9. Develop written and oral presentations based on statistical analyses for both public health professionals and educated lay audiences. (STA 521)
- BIOS CS10. Use and explain linear (simple and multiple) and logistic regression. (STA 503)
- BIOS CS11. Use and explain group comparison procedures. (STA 504)

### ***Community Health and Health Behavior (CHHB) Concentration Competencies***

- CHHB CS1. Plan, perform and report basic statistical calculations and analyses and critically read public health and medical care journal articles. (CHB 505)
- CHHB CS2. Demonstrate broad knowledge of the utility of and challenges to implementation of interventions to impact health behaviors and community health. (CHB 523, EEH 591, CHB 501)
- CHHB CS3. Understand and apply the skills essential to collaborating with the community in identifying health-related needs, developing study designs and conducting community-level research. (CHB 523, EEH 591, CHB 501)
- CHHB CS4. Apply a core set of skills relevant to community health and health behavior research, needs assessment, and monitoring and evaluation of public health programs. (CHB 523)
- CHHB CS5. Conduct data analyses applicable to community health and health behavior research and/or monitoring and evaluation of public health interventions. (CHB 505, STA 527)
- CHHB CS6. Communicate ideas and findings to scientific and lay audiences. (CHB 505, CHB 501)
- CHHB CS7. Critically evaluate the development, implementation, and utility of public health policies and programs designed to improve community health and health behaviors. (CHB 523, CHB 501, CHB 502)

### ***Environmental Health (EH) Concentration Competencies***

- EH CS1. Describe the activity and impact of biological, chemical and physical hazards on the human body, including the role of genetic factors, pathways and routes of exposure, fate within the body and adverse health effects. (PMY 626/627)
- EH CS2. Describe and apply a systematic approach in the investigation of the relationships between environmental agents and adverse health outcomes. (EEH 649)
- EH CS3. Interpret and read critically scientific literature in the environmental health sciences, including epidemiology, toxicology and relevant topics in biology, chemistry and medicine. (EEH 649, PMY 626/627)
- EH CS4. Integrate the above to analyze environmental health problems in specific population groups, including magnitude and distribution of exposures and adverse health outcomes, the role of contributing biological, psychological, sociocultural, economic and political factors as appropriate, and development and testing of hypotheses to link environmental hazards with adverse health outcomes. (EEH 649, PMY 626/627)
- EH CS5. Communicate results of scientific analysis of environmental health problems to appropriate organizations and stakeholders, including the public, legislative bodies, government agencies, industry, advocacy organizations and academia, to inform development and implementation of strategies for preventing and controlling those problems. (EEH 649, PMY 626/627, field placement and integrative project)

### ***Epidemiology (EPI) Concentration Competencies***

- EPI CS1. Plan, perform and report basic statistical calculations and analyses and critically read public health and medical care journal articles. (EEH 505)
- EPI CS2. Examine data for the presence of confounding and effect modification, identify their presence and manage them appropriately. (EEH 502, EEH 506)
- EPI CS3. Explain how bias, confounding, effect modification and random error may affect the results of epidemiologic investigations and how they may be prevented or controlled. (EEH 502, EEH 506)
- EPI CS4. Describe basic approaches for the collection of primary data, the use of secondary data, and the assessment of the quality of data collection and measurements. (EEH 502)
- EPI CS5. Describe different principles of investigation for acute outbreaks versus chronic conditions or other adverse outcomes in populations. (EEH 513)
- EPI CS6. Apply descriptive techniques commonly used to summarize public health data. (EEH 505, EEH 506)
- EPI CS7. Apply common statistical methods for inference. (EEH 505, EEH 506)
- EPI CS8. Apply descriptive and inferential methodologies according to the type of study design for answering a particular research question. (EEH 505, EEH 506)



### ***Health Services Administration (HSA) Concentration Competencies***

- HSA CS1. Explain the contribution of logic models in program development, implementation, and evaluation. (CHB 523)
- HSA CS2. Differentiate among goals, measurable objectives, related activities, and expected outcomes for a public health program. (CHB 523)
- HSA CS3. Differentiate the purposes of formative, process, and outcome evaluation. (CHB 523)
- HSA CS4. Differentiate between qualitative and quantitative evaluation methods in relation to their strengths, limitations, and appropriate uses, and emphasize reliability and validity. (CHB 523)
- HSA CS5. Demonstrate team building, negotiation, and conflict management skills. (EEH 543)
- HSA CS6. Develop strategies to motivate others for collaborative problem solving, decision-making, and evaluation. (EEH 543)
- HSA CS7. Apply theory and strategy-based communication principles across different settings and audiences. (EEH 543)
- HSA CS8. Demonstrate effective written and oral skills for communicating with different audiences in the context of professional public health activities. (EEH 543)
- HSA CS9. Identify the main components and issues of the organization, financing and delivery of health services and public health systems in the US. (EEH 543)
- HSA CS10. Demonstrate leadership skills for building partnerships. (EEH 543)

**MASTER OF SCIENCE  
(MS)**

# MASTER OF SCIENCE IN EPIDEMIOLOGY (MS)

The goal of the MS program is to provide both theoretical and experiential training that prepares students to participate in conducting epidemiologic research including working independently and as part of an interdisciplinary team.

## **DEGREE REQUIREMENTS**

The MS degree requires 33 credit hours: a minimum of 27 course credit hours plus a maximum of six credit hours of thesis credit. Students must maintain a minimum overall GPA of 3.0 and a minimum grade of 'B' (3.0) in all required courses. Note: 'B-' (2.67) is below the minimum grade for required courses.

### ***Required Courses for Epidemiology MS***

#### Principles and Methods of Epidemiology Core Courses

- EEH 501 Principles of Epidemiology (4 credits)
- EEH 502 Advanced Methodology (3 credits)

#### Statistical Methods Core Courses

- EEH 505 Application of Biostatistics to Epidemiology I (4 credits)
- EEH 506 Application of Biostatistics to Epidemiology II (4 credits)

#### Public Health Core Course

- CHB 550 Public Health and Population Wellbeing (3)

CREDITS FOR REQUIRED CORE COURSES FOR EPIDEMIOLOGY MS = 18 CREDITS

#### Elective Courses for Epidemiology MS

*Choose 3 Elective Epidemiology Courses (each course is 3 credits):*

- EEH 511 Nutritional Epidemiology (biennial)
- EEH 513 Epidemiology of Infectious Diseases (annual)
- EEH 515 Epidemiology of Cardiovascular Disease (annual)
- EEH 521 Special Topics, Obesity Epidemiology (annual)
- EEH 527 Cancer Epidemiology (annual)
- EEH 551 Epidemiologic Applications of Environmental Health (annual)
- EEH 618 Perinatal Epidemiology (biennial)
- EEH 620 Epidemics and Outbreaks (biennial)

CREDITS FOR REQUIRED EPIDEMIOLOGY MS ELECTIVE COURSES = 9 CREDITS

#### Graduate Seminar

- EEH 590 Graduate Seminar (0 Credits)

The graduate seminar is an opportunity to hear about epidemiologic research both from the department and school as well as from outside researchers. The seminars are an important complement to coursework for building an understanding of research methods and applications.

EEH 590 Graduate Seminar is a required course for:

- All full-time students
- All students who are certified full-time
- All full and part-time students who have completed their course work and are registered for a minimum of one credit hour of Thesis Guidance.

Students are required to register for and attend the weekly departmental seminars. The course will be assigned an 'S/U' grade. Students are allowed two unexcused absences per semester. An additional absence beyond the two may be granted ONLY for extenuating circumstances and requires the permission of the Director of Graduate Studies prior to the seminar.

CREDITS FOR REQUIRED GRADUATE SEMINAR = 0 CREDITS

**Recommended Options to Fulfill the Balance of Remaining Credit Hours**

The remaining credit hours can be fulfilled by any combination of the following:

- Any courses listed above as MS electives
- EEH 519 Principles of Measurement in Public Health (annual) **strongly recommended**
- EEH 700 Thesis/Dissertation Guidance (1-6 credits) (annual)

BALANCE OF CREDITS = 6 CREDITS

**NOTE FOR ALL MS STUDENTS:** Students can petition to take courses outside the listed electives or at the PhD level if the course is relevant to their future career plans and they obtain permission of the course instructor and the Director of Graduate Studies

**Recommended MS Course Sequence**

<b>MS IN EPIDEMIOLOGY (33 credits)</b>	
<b>Year 1: Fall Semester</b>	<b>Year 1: Spring Semester</b>
CHB 550 Public Health and Population Wellbeing (3) EEH 501 Principles of Epidemiology (4) EEH 505 Application of Biostatistics to Epidemiology I (4) EEH 519 Principles of Measurement in Public Health (3) ( <b>strongly recommended</b> ) EEH 590 Graduate Seminar (0)  Total credits=14	EEH 502 Advanced Methodology (3) EEH 506 Application of Biostatistics to Epidemiology II (4) EEH 590 Graduate Seminar (0) One Epidemiology Elective Course (3)  Total credits=10
<b>Year 2: Fall Semester</b>	<b>Year 2: Spring Semester</b>
EEH 590 Graduate Seminar (0)  One to Two Epidemiology Elective Course(s) (3 to 6)  Total credits=3 to 6	EEH 590 Graduate Seminar (0) EEH 700 Thesis/Dissertation Guidance (3)  One Epidemiology Elective Course if still needed to meet the three required electives (3)  Thesis Defense  Total credits=3 to 6

**Thesis Overview**

The thesis provides the student with an opportunity to raise hypotheses and to attempt to answer them through the conduct of a research study. It provides opportunity for to do independent epidemiologic research that demonstrates ability to identify a problem, develop a research design, and analyze, interpret and discuss data with the purpose of developing or testing theory. Students are urged to examine copies of theses on file in the Department’s graduate office or online at UB libraries.

**Thesis Committee**

When all formal coursework has been completed, and with the advice of their advisor, the student selects a committee consisting of a Major Professor who is a member or associate member of the UB Graduate Faculty whose primary geographic appointment is in the Department of EEH or Roswell Park Cancer Institute (RPCI) Department of Cancer Prevention and Control; and two additional Committee Members who are also members or associate members of the UB Graduate Faculty whose primary geographic appointment is at UB. A list of eligible members of the Graduate Faculty is available at the Graduate School website at [www.grad.buffalo.edu/academics/facultyroster/roster.cgi](http://www.grad.buffalo.edu/academics/facultyroster/roster.cgi). NOTE: geographic is defined as the department or unit of primary paying appointment where full-time professional services and activities are conducted.

All committee members of the thesis committee should be involved throughout the design and conduct of the original research project. The student is encouraged to meet frequently with their Committee. Faculty who geographically leave UB may remain on a student's committee for up to one year as a Committee Member, but not as Major Professor. If the Major Professor is no longer a full-time geographic EEH or RPCI Cancer Prevention and Control faculty member, the Major Professor must be replaced, however they may remain on the committee as a Committee Member for up to one year. Students could petition the Education Committee to have the faculty member remain in exceptional circumstances. The student would be required to have the unanimous vote of the Education Committee.

BEFORE a student begins work on their thesis, they must first have their committee approved by the Director of Graduate Studies using the **Thesis Committee Approval Form**. This form can be found at the link below:

<https://sphhp.buffalo.edu/content/dam/sphhp/epidemiology-and-environmental-health/pdf/students/thesis-committee-approval-form.pdf>.

A description of the study hypothesis is also required.

*Thesis Committee Checklist:*

- ✓ Submit the **Thesis Committee Approval Form** to the Director of Graduate Studies BEFORE beginning work on the thesis

**Thesis Proposal Defense**

With guidance from the Major Professor and all Committee Members, the student develops a written study plan (proposal). This plan includes: a definition of the problem the student intends to address, a review of the relevant literature, statement of rationale and objectives, study questions and/or hypotheses, and a description of the intended design and methods, in regard to any sampling, data collection, analytic methods with mock tables, power calculations, data analysis, and study strengths and limitations.

Before a student can proceed with their thesis, they must defend their proposal at a formal defense with the Major Professor and all Committee Members present. If all Committee Members cannot be present, a maximum of one Member may participate via conference telephone.

Students should allow a minimum of two weeks for their Major Professor/Committee Members to review all drafts and the final proposal. The Major Professor/Committee Members may set longer time limits if needed. Students should be respectful of faculty's time/workload. Approval of the proposal by the full Committee is required in order to schedule the proposal defense.

The proposal, summarized on the **Abstract of Proposed Research Form** (<http://sphhp.buffalo.edu/social-and-preventive-medicine/information-for-current-students.html>) must be approved by the full committee. The **Application to Candidacy** (ATC) and **Abstract of Research** are signed by the committee at the proposal defense (see sections on ATC and Abstract of the Proposed Research).

The MS proposal defense consists of a 20-25 minute presentation followed by questions from the committee. The presentation should include the background and rationale, study questions and hypotheses, and proposed study design and methods. The latter section should include information regarding data collection, analytic methods with mock tables, power calculations and study strengths and limitations. The full defense usually lasts about 1 hour.

Proposal Defense Checklist:

- ✓ With approval from the full committee, schedule the proposal defense
- ✓ Reserve a room for the defense through the Graduate Program Coordinator
- ✓ Distribute copies of the approved final copy of the proposal to the committee
- ✓ Formally defend the proposal with the Major Professor and all Committee Members present
- ✓ Bring the completed **Application to Candidacy Form** to the defense for signature of the committee
- ✓ Submit the completed **Application to Candidacy Form** to the Graduate Program Coordinator for signature of the Director of Graduate Studies

**Abstract of Proposed Research Form**

All students must submit an **Abstract of Proposed Research Form**. Be sure to follow the example format. The abstract form is signed by the committee at the proposal defense and submitted with the ATC (see section on Proposal Defense and ATC). The Abstract of Proposed Research Form remains in the Department. This form can be found at:

<http://sphhp.buffalo.edu/content/dam/sphhp/epidemiology-and-environmental-health/pdf/students/abstract-form-ms-and-phd.pdf>

**Application to Candidacy**

The **Application to Candidacy (ATC)** is a document that includes a summary of courses to be applied toward a degree. The filing of this document is required when all formal course work has been completed, and after the student has successfully defended their proposal. The ATC must be presented at the proposal defense for signature of the committee. The ATC form can be found at

<http://grad.buffalo.edu/content/dam/www/graduate/documents/students/atc.pdf>.

Students must include an abstract of their research (**Abstract of Proposed Research Form**) as noted above.

Be sure to follow the example format. Once the ATC has been approved, a student is not required to enroll for 12 credit hours (or 9 credit hours if appointed as a graduate, teaching or research assistant) to be considered full-time for tuition assistantship/scholarship, loan deferral, or immigrant status. To be certified full time a student must be registered for a minimum of one credit hour and submit a **Certification of Full-Time Status Form**. (See section on Certification of Full-Time Status). Be sure to refer to the checklist on the following page.

Application to Candidacy Checklist:

- ✓ Complete (type) Parts 1-7

Part 1: Degree Program: Master of Science in Epidemiology

Part 2 and 3: Fill out if applicable

Part 4: All courses must be listed in chronological order. If an intended course(s) and/or credit hours change, the student must complete a Change Expected Conferral Date/Amend ATC.

[http://grad.buffalo.edu/content/dam/www/graduate/documents/students/pet\\_amend.pdf](http://grad.buffalo.edu/content/dam/www/graduate/documents/students/pet_amend.pdf)

Part 5: If you have taken courses which will not be applied to the MS degree, attach an unofficial UB transcript and cross out course(s) which will not be applied. Course credits must total 33 (including transferred and future credits).

Part 6: All courses must be listed in chronological order. If transcripts were submitted at the time of application to the program, the Department will attach.

Part 7: BE SURE TO SIGN YOUR ATC! Student signature and signatures of the Major Professor and Committee Members are required (the student is responsible for obtaining signatures). Original signatures are required. ATCs submitted without all original signatures will be returned to the student.

NOTE: Name and signatures for the Associate Dean for Academic and Student Affairs and the Director of Graduate Studies are completed by the Department.

Submit to the Program Coordinator for Director's signature.

- ✓ Include the **Abstract of Proposed Research Form** signed by the committee.
- ✓ Submit the completed ATC to the department **no later than FOUR weeks before the Graduate School's official deadline.**
- ✓ Department deadlines are:
  - September 1 for a February degree conferral
  - February 1 for a June degree conferral
  - June 1 for a September degree conferral

**Read Carefully:** The Application to Candidacy (ATC) form must be submitted to the Department a minimum of FOUR weeks prior to the Graduate School deadline. This will allow time to be reviewed and approved by the Director of Graduate Studies and Associate Dean for Academic and Student Affairs before it is forwarded to the Graduate School. Incomplete ATCs will be returned to the student. ATCs received after the Department deadline may result in delay of degree conferral.

### ***Thesis Defense***

All MS students must complete and formally defend a thesis approved by the student's Major Professor and all Committee Members. The Major Professor, all Committee Members, and Director of Graduate Studies must be present for the final defense. In extenuating circumstances, if all Committee Members cannot be present, a maximum of one Member may participate via conference telephone.

**Students should allow a minimum of two weeks for their Major Professor/Committee Members to review all drafts and final copy of the thesis.** The Major Professor/Committee Members may set longer time limits if needed. Students should be respectful of faculty's time/workload. **Approval of the thesis by the full Committee is required in order to schedule the defense.**

In addition, a minimum of two weeks (14 days) notice must be allowed for the public posting of the defense. Prior to the posting of the defense, the final unbound copy of the thesis (in hard copy or pdf), approved by the student's committee, must be on file in the department for review. NOTE: the thesis is bound AFTER the student has successfully defended their thesis.

The MS thesis defense consists of a 25-30 minute presentation followed about one hour of questions. The presentation summarizes the thesis work including background, rationale for the work, study questions and/or hypotheses, methods, results, and conclusions and strengths and limitations. The presentation is followed by questions from the committee and then from anyone else in attendance. If the committee prefers, they can allow the audience to ask questions prior to the committee. After the question period, the student is dismissed and the committee comes to a consensus as to whether or not the student passed and if anything additional, with respect to the thesis, needs to be addressed prior to completion of the degree. The student is admitted back to the room and the committee decision (with a possible request for items to be addressed) is communicated to the student.

#### *Thesis Defense Checklist:*

- ✓ When approval from the full Committee is received, schedule an oral defense of the thesis:
  - Confirm date with the Committee and Director of Graduate Studies
  - Confirm availability of room
- ✓ Provide the Department with an approved final copy of the thesis. NOTE: the thesis should be bound AFTER the defense in the event the Committee requires minor changes as a result of the defense.
- ✓ Notify the Graduate Program Coordinator of the defense date and title of the thesis.
- ✓ A room will be reserved and a public notice will be posted for the defense. A minimum of two weeks' notice (14 days) must be allowed for posting of the defense. A copy of the prepared **M-Form** and **Graduation Information Form** will be prepared and placed in the student's mailbox (see section on **M-Form**).

### ***M-Form***

The **M-form** (Multi-Purpose Form) is prepared by the Graduate Program Coordinator and is brought by the student to the defense. Section 2 of the form is signed by the Major Professor and all Committee Members at the defense certifying the student has successfully defended their thesis. If as a result of the defense, revisions to the thesis are required, the Major Professor retains the form and signs Section 3 only after the revisions have been examined and approved by all Committee Members. Signature of the Director of Graduate Studies is also required. The completed **M-Form** is submitted to the Program Coordinator allowing enough time to be received at the Graduate School by the official deadline posted on the Graduate School website ([www.grad.buffalo.edu/Academics/Academic-Deadlines.html](http://www.grad.buffalo.edu/Academics/Academic-Deadlines.html))

NOTE: The M-Form will not be forwarded to the Graduate School until a bound copy of the thesis is submitted to the Department. In exceptional cases, the department may accept a bindery receipt in lieu of the bound copy.



*M-Form Checklist:*

- ✓ Present the **M-Form** at the thesis defense for signatures of the Committee and Director of Graduate Studies
- ✓ Submit completed **M-Form** and **Graduation Information Form** to the Program Coordinator
- ✓ Submit bound copy of the thesis to the Department

**Graduation Information Form**

The **Graduation Information Form** should be completed and brought to the thesis defense. A copy of the form will be provided at the time of the defense.

**Submission of the Thesis**

The Graduate School requires an electronic submission of the thesis. Electronic submission can be made at [www.grad.buffalo.edu/Academics/ETD.html](http://www.grad.buffalo.edu/Academics/ETD.html). Guidelines for submission can be found on the website.

The Department requires one bound copy of the thesis in black imitation leather with gold stamping. The title, student's name, degree and date should appear on the cover. The student's name, degree and date should also appear on the spine. Students should inquire whether or not their Major Professor and each Committee Member desires a bound copy prior to ordering one. Some faculty members may not wish to receive a bound copy. Ordering of bound copies for faculty members are the responsibility of the student.

**Guidelines for the Thesis Document**

Several style manuals are available that will answer a host of questions regarding the technical aspects of preparing the thesis or dissertation (see below).

American Psychological Association. <http://www.apastyle.org/>

Modern Language Association. <http://www.mla.org/>

University of Chicago, Chicago Manual of Style. <http://www.chicagomanualofstyle.org/>

Copies of completed thesis are available for reference in the Department or online at the Health Sciences Library. At least two weeks should be allowed for binding the final copy. Copies should be bound in boards covered with black imitation leather, with the title and author's name embossed, not printed, on the front in gold and the author's last name, degree and year of conferral of the degree on the spine (also in gold).

Students should also provide bound copies for their Committee Members unless otherwise indicated.

**Research and Professional Conduct**

The diversity of faculty interest areas allows for many opportunities for research. All graduate students are expected to be actively involved in research throughout their educational experience. The University and department hold standards for professional conduct (see Warning on Plagiarism).

**Abstract Submission to Professional Meetings**

Students intending to submit abstracts to professional meetings must obtain written approval from their advisor PRIOR to submission. All abstracts must include a full citation of authorship.

**Time Limit to Complete the Degree**

The time limit for completing the MS degree is FOUR years from the date of first registration in the degree program, not including official leaves of absence, regardless of full- or part-time status. Of course, students will take four years only in exceptional cases. It is expected that students will complete their degree within two years.

### ***Extension of Time to Complete the Degree***

Students unable to complete the MS program within the time limit must petition the Graduate School for an extension of time to complete the degree provided there exists adequate reason to justify such a request. The Graduate School will not approve an extension for 'personal reasons,' you must be specific and present strong justification for your request. Students must provide a detailed description of work completed to date, a detailed month-to-month timeline for completion of the thesis/degree, and a written endorsement from the advisor/major professor. Requests for extensions should be made at least two weeks prior to the start of the semester. The ***Extension of Time Limit for Degree Completion*** is available at the following link:

[http://grad.buffalo.edu/content/dam/www/graduate/documents/students/pet\\_extension.pdf](http://grad.buffalo.edu/content/dam/www/graduate/documents/students/pet_extension.pdf)

#### ***Extension of Time Checklist:***

- ✓ Complete ***Extension of Time Limit for Degree Completion***
- ✓ Be sure to sign form
- ✓ Obtain signature of advisor/major professor
- ✓ Attach written statement indicating:
  - Cause of the delay
  - Detailed description of work completed thus far
  - Detailed month-to-month plan or work to be completed
- ✓ Attach written endorsement from advisor/major professor
- ✓ Forward to the Program Coordinator (do not send directly to the Graduate School)

### Checklist for MS Degree Conferral

33 graduate credit hours are completed with an overall 'B' (3.0) average (a minimum of 27 credit hours of graduate course work plus a maximum of six credit hours of thesis credit).

- A minimum grade of 'B' (3.0) in all required course work.
- Registration and attendance at the graduate seminar when registered full time, certified full time, and/or while registered for a minimum of one credit hour of Thesis Guidance or RPCI Natural Sciences Research.
- Continuous registration from the date of matriculation (unless on an approved leave of absence).
- An approved **Application to Candidacy** is on file in the Graduate School with all necessary attachments, including original transcripts.
- Submission of an approved **Abstract of Proposed Research Form**.
- If beyond the four-year time limit for completion of degree, an approved **Extension of Time Limit to Complete the Degree** is on file in the Graduate School.
- Review unofficial UB transcript and address any "I" or "J" grades.
- Successful completion and defense of a thesis.
- M-Form** submitted to the Graduate School by the established deadlines.
- Graduation Information Form** submitted to the Department.
- One bound copy of the thesis submitted to the Department. (Copies should also be provided to all Committee Members if desired).
- Electronic submission of the thesis to the Graduate School.

Degree Conferral Timetable			
For Degree Conferral on:	February 1	June 15	September 1
Application to Candidacy due to the Department	September 1	February 1	June 1
Application to Candidacy due at the Graduate School	October 1*	March 1*	July 1*
ALL required materials must be received in the Graduate School by the official deadline posted on the Graduate School website ( <a href="http://www.grad.buffalo.edu/Academics/Academic-Deadlines.html">www.grad.buffalo.edu/Academics/Academic-Deadlines.html</a> )			

\* **Read Carefully:** The Application to Candidacy (ATC) form must be submitted to the Department a minimum of FOUR weeks before it is due at the Graduate School. This will allow time to be reviewed and approved by the Director of Graduate Studies and the Associate Dean for Academic and Student Affairs before it is forwarded to the Graduate School. Incomplete ATCs will be returned to the student. ATCs received after the Department deadline may result in delay of degree conferral.

## **MS EPIDEMIOLOGY CLINICAL RESEARCH TRACK**

The specialized clinical research track within the MS program provides the MS student with skills and knowledge to design and conduct independent clinical research. The program is designed to be rigorous yet flexible with individualized training allowing for course electives in the research discipline including pharmacy, nursing, dentistry or medicine.

Please refer to the website for information on the **MS Epidemiology Clinical Research Track**:

<http://sphhp.buffalo.edu/epidemiology-and-environmental-health/education/epidemiology-MS/requirements-and-curriculum/clinical-research-track.html>

## **COMPREHENSIVE EXAMINATION**

Masters' students who intend to pursue the PhD should consider taking the Comprehensive Exam while in the master's program at the end of the first year of coursework (see section on PhD Comprehensive Examination).

## **MS COMPETENCIES**

Found at <http://sphhp.buffalo.edu/epidemiology-and-environmental-health/education/epidemiology-MS/competencies.html>

- MS C1. Definition of Epidemiology.  
Define epidemiology and the range of epidemiologic practice in medicine, biomedical science and public health.
- MS C2. Study Designs and Measures.  
Describe the major epidemiologic study designs, their strengths and limitations, and their application for assessing the prevalence and incidence of disease and risk factors for disease in the population and in public health research.
- MS C3. Evaluation of Epidemiologic Data.  
Critically evaluate the results of epidemiologic studies for study design implementation, evaluating chance, bias, confounding and effect modification as part of interpreting study results and using them to make appropriate inferences.
- MS C4. Screening.  
Describe a public health screening program and identify its principles and limitations.
- MS C5. Surveillance.  
Describe a public health surveillance program and identify its principles and limitations.
- MS C6. Principles of Communicable and Non-Communicable Disease Prevention and Control.  
Describe the principles of communicable and non-communicable disease prevention and control.
- MS C7. Application of Biostatistics to Epidemiology.  
Apply and interpret common and appropriate statistical methodologies for answering epidemiologic research question.
- MS C8. Ethical Conduct of Human Subjects Research.  
Comprehend basic ethical and legal issues pertaining to the collection, use and dissemination of epidemiologic data; apply knowledge of human subjects' protections, informed consent, and confidentiality to research activities.
- MS C9. Culminating Thesis.  
Develop and execute a hypothesis-driven epidemiologic study, including a literature review and original data analysis culminating in a defensible written document (equivalent to one publishable manuscript) and oral presentation.

**DOCTOR OF PHILOSOPHY  
(PHD)**

# DOCTOR OF PHILOSOPHY IN EPIDEMIOLOGY (PhD)

The goal of the PhD program is to provide advanced theoretical and complex experiential training that allows students to independently lead and conduct all phases of an epidemiologic research project.

## **DEGREE REQUIREMENTS**

The PhD degree requires 72 credit hours: a minimum of 60 hours of graduate courses plus a maximum of 12 hours of dissertation credit can be applied to the degree. Students must maintain a minimum overall GPA of 3.0 and a minimum grade of 'B' (3.0) in all required courses. NOTE: 'B-' (2.67) is below the minimum grade for required courses.

### ***Required Courses for Epidemiology PhD***

#### Principles and Methods of Epidemiology Core Courses

- EEH 501 Principles of Epidemiology (4 credits)
- EEH 502 Advanced Methodology (3 credits)
- EEH 602 Advanced Epidemiologic Study Designs (3 credits) \*

#### Statistical Methods Core Courses

- EEH 505 Application of Biostatistics to Epidemiology I (4 credits)
- EEH 506 Application of Biostatistics to Epidemiology II (4 credits)
- EEH 627 Analysis of Health Data (4 credits) \*
- One advanced statistic course outside of the department such as:
  - NUS 695 Advanced Statistical Techniques (3 credits)
  - STA 503 Regression Analysis (3 credits)
  - STA 517 Categorical Data Analysis (3 credits)
  - STA 575 Survival Analysis (3 credits)

#### Public Health Core Course

- CHB 550 Public Health and Population Wellbeing (3 credits)

CREDITS FOR REQUIRED CORE COURSES FOR EPIDEMIOLOGY PHD = 28 CREDITS

#### Epidemiology Elective for Epidemiology PhD

*Choose four Epidemiology Elective Courses:*

- EEH 511 Nutritional Epidemiology (biennial)
- EEH 513 Epidemiology of Infectious Diseases (annual)
- EEH 515 Epidemiology of Cardiovascular Disease (annual)
- EEH 521 Special Topics, Obesity Epidemiology (annual)
- EEH 527 Cancer Epidemiology (annual)
- EEH 551 Epidemiologic Applications of Environmental Health (annual)
- EEH 553 Fundamentals of Grant Development (annual) \*
- EEH 561 Advanced Cancer Epidemiology and Prevention (annual) \*
- EEH 604 Fundamentals of Genetic Epidemiology (annual) \*
- EEH 614 Molecular Epidemiology (annual) \*
- EEH 618 Perinatal Epidemiology (biennial)
- EEH 620 Epidemics and Outbreaks (biennial)
- EEH 621 Advanced Topics in Cardiovascular Epidemiology and Prevention (annual) \*
- EEH 622 The Role of Physical Activity in the Etiology, Treatment and Prevention of Chronic Disease (biennial) \*

CREDITS FOR REQUIRED EPIDEMIOLOGY PHD ELECTIVE COURSES = 12 CREDITS

\* This course is designed for advanced doctoral students.

### Graduate Seminar

- EEH 590 Graduate Seminar (0 Credits)

The graduate seminar is an opportunity to hear about epidemiologic research both from the department and school as well as from outside researchers. The seminars are an important complement to coursework for building an understanding of research methods and applications.

EEH 590 Graduate Seminar is a required course for:

- All full-time students
- All students who are certified full-time
- All full and part-time students who have completed their course work and are registered for a minimum of one credit hour of Dissertation Guidance.

Students are required to register for and attend the weekly departmental seminars. The course will be assigned an 'S/U' grade. Students are allowed two unexcused absences per semester. An additional absence beyond the two may be granted ONLY for extenuating circumstances and requires the permission of the Director of Graduate Studies prior to the seminar.

For students who have successfully defended their proposal AND filed their ATC (with abstract) BEFORE the start of the semester, a minimum of 50 percent attendance at the seminars is required for each semester until degree completion.

CREDITS FOR REQUIRED GRADUATE SEMINAR = 0 CREDITS

### Ethics Course/Responsible Conduct of Research (RCR) Training

Doctoral students must receive formal training in the Responsible Conduct of Research. Students may fulfill this training requirement by passing one of the course options listed below. Students are required to document successful completion of their training when they submit their **Application to Candidacy**

(ATC) (see section on Application to Candidacy).

- PHI 640 Graduate Research Ethics (2 credits)
- RPN 541 Ethics and Conduct of Research (1 credit)
- Collaborative Institutional Training Initiative (CITI) online course (score of 80% or higher) (0 credits)

CREDITS FOR REQUIRED ETHICS COURSE = 0 to 2 CREDITS

### **Recommended Options to Fulfill the Balance of Remaining Credit Hours**

REMAINING BALANCE OF CREDITS = 30 to 32 CREDITS – DEPENDING ON CREDITS TAKEN FOR THE ETHICS COURSE

The remaining 30 to 32 credits are tailored to the trainee's particular interests and needs, and are planned in consultation with the faculty advisor. Elective courses taken outside the following departments must first be approved by the Director of Graduate Studies: EEH, Biostatistics, Community Health and Health Behavior; and RPCI Natural Sciences, and Cancer Prevention and Control.

It is strongly recommended that PhD students register for EEH 519, and engage in Independent Study and/or Directed Research Credits (shown below). Students should register for EEH 700 Thesis/Dissertation Guidance while working on their dissertations.

### Strongly Recommended

- EEH 519 Principles of Measurement in Public Health (3 credits)
- EEH 599 Independent Study (1-9 credits).
  - For students with special interests not satisfied through the formal course work, there is an opportunity to pursue independent study under the direction of a faculty member. With permission of the instructor, students can take EEH 599 Independent Study for up to nine credits.
- EEH 950 Directed Research (1-6 credits).

- Students can engage in directed research under the mentorship of a faculty member. It is suggested that PhD students register for Directed Research when working on writing their dissertation proposals. With permission of the instructor, students can take EEH 950 Directed Research for up to six credits.

Register while working on Dissertation

- EEH 700 Thesis/Dissertation Guidance (1 to 12 credits)
  - Student should register for this while working on their dissertations.

For doctoral students who have successfully defended their proposal AND filed their ATC (with abstract) BEFORE the start of the semester, a minimum of 50 percent attendance at the seminars is required for each semester until degree completion.

Part-time students are strongly encouraged to attend the seminars.

**Graduate Seminar Requirement**

Doctoral students are required to present at least one departmental seminar while in the final stages of their data analysis and PRIOR to scheduling their dissertation defense.

- EEH 590 Graduate Seminar (0 credits).

Departmental Seminar Checklist:

- ✓ Present a departmental seminar prior to scheduling the dissertation defense

NOTE: The proposal must be successfully defended and the ATC must be submitted BEFORE the start of the semester for the 50% attendance rule to apply



**Recommended PhD Course Sequence**

<b>PHD IN EPIDEMIOLOGY (72 credits)</b>	
<b>Year 1: Fall Semester</b>	<b>Year 1: Spring Semester</b>
CHB 550 Public Health and Population Wellbeing (3) EEH 501 Principles of Epidemiology (4) EEH 505 Application of Biostatistics to Epidemiology I (4) EEH 519 Principles of Measurement in Public Health (3) (strongly recommended) EEH 590 Graduate Seminar (0)	EEH 502 Advanced Methodology (3) EEH 506 Application of Biostatistics to Epidemiology II (4) EEH 590 Graduate Seminar (0)  Complete CITI Training  <u>6 Credits from any of the following:</u> Required Advanced Statistics Course (3) Epidemiology Elective Course(s) (3 - 6) EEH 599 Independent Study (1- 9)
Total credits=14	Total credits=13
<b>Year 1: End of Spring Semester</b>	
Comprehensive Exam (in May after Spring semester)	
<b>Year 2: Fall Semester</b>	<b>Year 2: Spring Semester</b>
EEH 590 Graduate Seminar (0) EEH 602 Advanced Epidemiologic Study Designs (3) EEH 627 Analysis of Health Data (4)  <u>6 Credits from any of the following:</u> Required Advanced Statistics Course (3) Epidemiology Elective Course(s) (3 - 6) EEH 599 Independent Study (1- 9)	EEH 590 Graduate Seminar (0)  <u>12 Credits from any of the following:</u> Required Advanced Statistics Course (3) Epidemiology Elective Course(s) (3 - 6) EEH 599 Independent Study (1- 9) EEH 950 Directed Research (1- 6)
Total credits=13	Total credits=12
<b>Year 2: Summer</b>	
Preliminary Exam (Summer of second year) – see requirements to sit for preliminary exams	
<b>Year 3: Fall Semester</b>	<b>Year 3: Spring Semester</b>
EEH 590 Graduate Seminar (0)  <u>Balance of Credit Hours:</u> Additional Epidemiology Course (3) EEH 700 Thesis/Dissertation Guidance (1-12) EEH 950 Directed Research (1-6)	EEH 590 Graduate Seminar (0)  <u>Balance of Credit Hours:</u> Additional Epidemiology Course (3) EEH 700 Thesis/Dissertation Guidance (1-12) EEH 950 Directed Research (1-6)
Total credits=6	Total credits=6
<b>Year 3: Summer</b>	
Specialty Exam and Proposal Defense (During the third year or during the summer of third year)	
<b>Year 4: Fall Semester</b>	<b>Year 4: Spring Semester</b>
EEH 590 Graduate Seminar (0)  <u>Balance of Credit Hours:</u> EEH 700 Thesis/Dissertation Guidance (1-12)	EEH 590 Graduate Seminar (0)  <u>Balance of Credit Hours:</u> EEH 700 Thesis/Dissertation Guidance (1-12)
Total credits=4	Total credits=4

**NOTE:** A student with a MS degree in epidemiology may be able to complete the PhD degree in less time.

### **Comprehensive Examination**

A written in-class Comprehensive Exam is required for all PhD students. The purpose of the exam is to assess mastery of basic epidemiological concepts and the ability to integrate those concepts. The exam must be taken at the end of the academic year immediately following successful completion ('B' or better) of the four core required courses or the equivalent: EEH 501, EEH 502, EEH 505, EEH 506.

- Full-time students must take the exam after the 1<sup>st</sup> year of classes.
- Part-time students must take the exam by the Spring semester immediately following completion of the required courses (see above).
- Re-entering students must take the exam after their first year of re-entering the program or, if preferred, prior to re-entering

The exam will be given 2-3 weeks after the end of the Spring semester (date to be announced).

- All students who have completed the necessary courses (see above) must take this exam on the date scheduled. **There are no exceptions.**
- Missing the exam for any reason requires documentation. Legitimate excuses for absence at the exam include: religious observance, illness documented by a physician or other appropriate health care professional, conflicts with University sanctioned activities, public emergencies, and documented personal or family emergencies. The student is responsible for notifying the department in writing with as much advance notice as possible. Absences for University sanctioned activities shall be certified in writing by an appropriate senior University administrator, e.g., Vice President of Student Affairs, Dean for Student Affairs, or Vice Provost for Academic Affairs.
- A non-excusable absence is considered a failure. The student must take the exam in August of the same year or wait until the following year. Students who opt to take the exam the following year will not be allowed to continue their course work until they successfully pass the exam.
- Grades will be provided approximately two weeks after the exam.

The exam will include any material from these required courses:

EEH 501 – Principles of Epidemiology  
EEH 502 – Advanced Methodology  
EEH 505 – Application of Biostatistics to Epidemiology I  
EEH 506 – Application of Biostatistics to Epidemiology II

- The exam will consist of multiple choice, short written answers, and calculation and interpretation questions. The exam will not be open book.
- The exam will be a full day exam given in two parts.

Students must successfully complete this exam before proceeding with additional coursework.

- Minimum passing grade: 80%
- One makeup exam will be allowed during the same summer for students who do not pass the exam on the first attempt.
- Students who fail both attempts will be allowed to complete the requirements for a master's degree.

## General Analytic Preliminary Exam

**Purpose.** The purpose of the exam is to determine whether the student has sufficient knowledge essential for conducting advanced epidemiology research toward a doctoral degree. Permission of the student's advisor is required in order to sit for the general preliminary exam. Students interested in taking the exam should submit their request in writing to the Director of Graduate Studies. Students are expected to sit for the General/Analytic prelim no later than the end of their second year in the doctoral program. Delaying the prelim for one additional year will require a written justification and permission of the student's major advisor and the Graduate Director.

### Preliminary Exam Checklist:

- ✓ Receive permission of advisor
- ✓ Notify the Director of Graduate Studies in writing

**Exam format.** The examination will include both written and oral components. The exam focuses on general epidemiologic methods, including data analysis and/or interpretation. At least one question focuses on analytic methods and could include analysis of a designated data set and summarizing results of the analysis in data tables as well as written text, such as brief paragraphs and/or abstract. The remaining questions will focus on application of general epidemiologic methods. The written component is usually administered during the summer, with exact dates determined on a yearly basis. Students who pass the written examination then proceed to the oral examination, usually scheduled within a month of being notified that they passed the written component.

**Eligibility.** Epidemiology PhD students are **eligible to sit for the general analytic preliminary exam** after successfully completing (grade of 'B' or better) 48 credit hours toward the doctorate (including all required courses) and before defense of a doctoral dissertation proposal. These courses are listed in the box below. Students must maintain a minimum overall GPA of 3.0 and a minimum grade of 'B' (3.0) **in all required course** to sit for the exam.

### REQUIRED COURSES

#### *Epidemiologic Methods Courses*

- EEH 501 Principles of Epidemiology (4 credits)
- EEH 502 Advanced Methodology (3 credits)
- EEH 602 Advanced Epidemiologic Study Designs (3 credits)

#### *Statistics Courses*

- EEH 505 Application of Biostatistics to Epidemiology I (4 credits)
- EEH 506 Application of Biostatistics to Epidemiology II (4 credits)
- One advanced statistics course (minimum of 3 credits)

#### *Analysis of Health-Related Data*

- EEH 627 Analysis of Health Data (4 credits)

#### *Epidemiology Elective Courses*

- Four of the epidemiology elective courses (12 credits)

#### *Additional School-wide Required Course*

- CHHB 550 Public Health and Population Wellbeing (3 credits)

### ADDITIONAL COURSE WORK

#### *Electives/Independent Study/Directed Research*

- 8 additional credits as Electives and/or Independent Study and/or Directed Research

**This will give students a total of 48 credits**

**Suggested preparation.** In addition to course work, preparation for the preliminary exam should include self-directed independent preparation by the student. Students are strongly encouraged to do independent reading, attend relevant seminars and organize and participate in preliminary exam study sessions with other graduate students who are also scheduled to take the exam. All students are expected to be actively involved in research throughout their educational experience; research experience will help in successful completion of the exam.

**Next steps following the General/Analytic prelims.** Students are encouraged to complete any additional course credits so that their total credits completed by the end of their third year (the year after they take the General/Analytic prelim exam) in the PhD program equals 60 credits.

No later than one year after passing the General/Analytic prelim exam, students must submit their dissertation proposal to their committee and **initiate the Proposal/Specialty exam process**. Students are encouraged to initiate this process as soon as possible. Students who are unable to submit their proposal for the Proposal/Specialty exam within the year after passing the General/Analytic prelim must provide a written justification, with permission from their major advisor, to the Graduate Director for approval of an extension.

**Students with an MS in epidemiology from EEH.** Students admitted to the PhD program who were awarded an MS in epidemiology from EEH will take the prelim exam *at the end of their first year of doctoral studies*. They must have completed all required course work for the PhD (see the box above), take a minimum of 12 credits in the first year of their doctoral program, and have passed the Comprehensive Exam in order to sit for prelims. These students are encouraged to complete 60 credits before sitting for prelims. Delaying the prelim for one additional year (until the end of the second year in the doctoral program) will require a written justification and permission of the student's major advisor and the Graduate Director.

### ***Dissertation Overview***

Students are required to design and undertake significant hypothesis-driven original independent epidemiological research that includes aims publishable as a minimum of three manuscripts that demonstrate mastery and understanding in one or more overarching content area(s) as reported in a doctoral dissertation. In accordance with the rules of the Graduate School, the dissertation proposal and the completed research must be defended before a three-member committee selected by the candidate with the approval of the department.

### ***Dissertation Committee***

When all formal coursework and the general analytic preliminary exam have been successfully completed, and with the advice of their advisor, the student selects a committee which consists of a Major Professor who is a member of the UB Graduate Faculty whose primary geographic appointment is in the Department of EEH or Roswell Park Cancer Institute (RPCI) Department of Cancer Prevention and Control; and two additional Committee Members who are also members of the UB Graduate Faculty whose primary geographic appointment is at UB. A list of eligible members of the Graduate Faculty is available at the Graduate School website at [www.grad.buffalo.edu/academics/facultyroster/roster.cgi](http://www.grad.buffalo.edu/academics/facultyroster/roster.cgi). Graduate Faculty associate members may not serve as one of the three Committee Members, but may serve as an additional Committee Member.

NOTE: geographic is defined as the department or unit of primary paying appointment where full-time professional services and activities are conducted.

All Committee Members of the dissertation should be involved throughout the design and conduct of the original research project and in the Specialty Exam/Dissertation Proposal Defense. The student is encouraged to meet frequently with their Committee. Faculty who geographically leave UB may remain on a student's committee for up to one year as a Committee Member but not as Major Professor. If the Major Professor is no longer a full-time geographic EEH or RPCI Cancer Prevention and Control faculty member, the Major Professor must be replaced, however, they may remain on the Committee as a Committee Member for up to one year. Students can petition the Education Committee to have the faculty member remain in exceptional circumstances. The student would be required to have the unanimous vote of the Education Committee.

BEFORE a student proceeds to the specialty exam/dissertation proposal defense, they must first have their Committee approved by the Director of Graduate Studies using the ***Dissertation Committee Approval Form***. This form can be found at the link below:

<https://sphhp.buffalo.edu/content/dam/sphhp/epidemiology-and-environmental-health/pdf/students/dissertation-committee-approval-form.pdf>.

A description of the study hypothesis is also required. If additional expertise is needed, students can include a 4<sup>th</sup> member on their committee. The 4<sup>th</sup> member is not required to have a primary geographic, graduate faculty, or UB appointment.

All doctoral students are required to include a biostatistician or methodologist faculty member on their Committee. Students who do not have a biostatistician or methodologist faculty member must have their Committee approved by the Education Committee.

Dissertation Committee Checklist:

- ✓ Submit the **Dissertation Committee Approval Form** to the Director of Graduate Studies

### **Specialty Exam/Dissertation Proposal Defense**

The specialty exam/dissertation proposal defense should be initiated within one year after successful completion of the general/analytic prelim exam, and after the dissertation committee has been approved. *If the student is not able to do so within twelve months, a written justification must be provided to the Director of Graduate Studies for approval of an extension.*

BEFORE a student proceeds to the specialty exam/dissertation proposal defense, they must first have their Committee approved by the Director of Graduate Studies using the **Dissertation Committee Approval Form** (<https://sphhp.buffalo.edu/content/dam/sphhp/epidemiology-and-environmental-health/pdf/students/dissertation-committee-approval-form.pdf>).

A description of the study hypothesis is also required. If additional expertise is needed, students can include a 4<sup>th</sup> member on their committee. The 4<sup>th</sup> member is not required to have a primary geographic, graduate faculty, or UB appointment.

**Proposal.** The student will write a proposal, approximately 15-25 pages (single space, one inch margins), which includes the following sections: specific aims, background and significance, methods, including a detailed analytic plan, strengths and limitations, student roles and responsibilities and timeline. The proposal must be approved by all committee members as sufficiently developed for defending before the student may move on to the written exam and proposal defense.

**Written Specialty Exam.** A written exam will be developed by the student's dissertation committee based on the approved proposal. The exam will be both specific to the student's dissertation project and to the student's general area of research and will include at least three questions. The purpose of the exam is to measure the student's ability to analyze and synthesize information and to determine whether the student has sufficient breadth and depth of knowledge in their specialty area to successfully complete the proposed project.

The exam will be given to the student within two weeks after the proposal is approved. The student will have two weeks to respond to the questions. The written exam should be scheduled such that it is handed in at least two weeks before the oral exam is held. *The student may refer to literature or other relevant resources, which must be appropriately cited.* The student must not discuss the exam with others, including faculty and students.

The committee will review the written responses before the oral exam and determine whether the answers are sufficient to proceed with the oral defense. The committee reserves the right to postpone the oral if the written responses are not sufficiently developed. The student would be given one month to revise their responses.

**Proposal Defense.** A public defense of the proposal and written exam is held. The purpose of the oral exam is to allow the Committee to question the student about their written exam, dissertation topic, and oral presentation, and to provide an opportunity for the student to present the proposed dissertation project to the public. The student is responsible for scheduling a time and date that is convenient for the Committee Members. The student's Major Professor and all Committee Members must be present. If all Committee Members cannot be present, a maximum of one Member may participate via conference telephone.

A minimum of one week (7 days) notice must be allowed for the public posting of the Specialty Exam/Dissertation Proposal Defense.

The specialty exam/PhD proposal defense should take approximately two hours. The specialty exam/dissertation proposal defense consists of a 30-minute presentation followed by approximately 1.5 hours of questions first from the student's committee and then from others in attendance. If the committee prefers, they can allow the audience to ask questions prior to those from the committee. The presentation should include the background and rationale,

briefly reviewing the relevant literature, study questions, hypotheses and their significance, and proposed study design, including data collection and analytic methods for each component manuscript of the dissertation proposal, as well as strengths and limitations. After the question session is completed, the audience is dismissed and just the student and the committee remain. At that point, the student is questioned about their responses on the specialty exam as well as other questions related to the topic for approximately 50-60 minutes more.

The **Application to Candidacy** (ATC) and **Abstract of the Proposed Research Form** are signed by the Committee after a successful proposal defense. (See sections on ATC and Abstract of Research). If a student fails the oral exam, they will have one additional opportunity to pass an oral exam after completing work assigned by the Committee to remedy identified deficiencies. The amount of time between exams will be no longer than one month.

*Specialty Exam/Dissertation Proposal Defense Checklist:*

- ✓ With approval of the committee, schedule the specialty exam/proposal defense.
- ✓ Reserve a room for the defense through the Graduate Program Coordinator
- ✓ Formally defend the proposal with the Major Professor and all Committee Members present
- ✓ Bring the completed **Application to Candidacy Form** and **Abstract of Proposed Research Form** (see section on ATC) to the defense for signature of the Committee
- ✓ Submit the completed **Application to Candidacy Form** and **Abstract of Proposed Research Form** to the Graduate Program Coordinator for signature of the Director of Graduate Studies

**Abstract of Proposed Research Form**

All students must submit an **Abstract of Proposed Research Form**. Be sure to follow the example format. The abstract form is signed by the Committee at the proposal defense and submitted with the ATC (see section on Proposal Defense and ATC). The Abstract of Proposed Research Form remains in the Department. This form can be found at:

<http://sphhp.buffalo.edu/content/dam/sphhp/epidemiology-and-environmental-health/pdf/students/abstract-form-ms-and-phd.pdf>

**Application to Candidacy**

The **Application to Candidacy (ATC)** is a document that includes a summary of courses to be applied toward a degree. The filing of this document is required when all formal course work has been completed, and after the student has successfully defended the proposal. The ATC must be presented at the proposal defense for signature of the Committee. The ATC form can be found at:

<http://grad.buffalo.edu/content/dam/www/graduate/documents/students/atc.pdf>

Students must include an abstract of their proposed research (**Abstract of Proposed Research**) as noted above.

Be sure to follow the example format. Once the ATC has been approved, a student is not required to enroll for 12 credit hours (or 9 credit hours if appointed as a graduate, teaching or research assistant) to be considered full-time for tuition assistantship/scholarship, loan deferral or immigrant status. To be certified full time a student must be registered for a minimum of one credit hour and submit a **Certification of Full-Time Status Form**. (See section on Certification of Full-Time Status). Be sure to refer to the checklist on the following page.

Application to Candidacy Checklist:

- ✓ Complete (type) Parts 1-7.

Part 1: Degree Program: Doctor of Philosophy in Epidemiology

Part 2 and 3: Fill out if applicable

Part 2a: The Department will attach original transcripts for the baccalaureate degree, if required.

Part 4: All courses must be listed in chronological order. If an intended course(s) and/or credit hours change, the student must complete a Change Expected Conferral Date/Amend ATC

[http://grad.buffalo.edu/content/dam/www/graduate/documents/students/pet\\_amend.pdf](http://grad.buffalo.edu/content/dam/www/graduate/documents/students/pet_amend.pdf)

Part 5: If you have taken courses which will not be applied to the PhD degree, attach an unofficial UB transcript and cross out course(s) which will not be applied. Course credits must total 72 (including transferred and future credits).

Part 6: All courses must be listed in chronological order. If transcripts were submitted at the time of application to the program, the Department will attach.

Part 7: BE SURE TO SIGN YOUR ATC! Student signature and signatures of the Major Professor and Committee Members are required (the student is responsible for obtaining signatures). Original signatures are required. ATCs submitted without all original signatures will be returned to the student.

NOTE: Name and signatures for the Associate Dean for Academic and Student Affairs and the Director of Graduate Studies are completed by the Department.

Submit to the Program Coordinator for Director's signature.

- ✓ Include the **Abstract of Proposed Research Form** signed by the committee.
- ✓ If Responsible Conduct of Research (RCR) training was fulfilled by completing the CITI online course, attach a copy of documentation of successful completion.
- ✓ Submit the completed ATC to the department **no later than FOUR weeks before the Graduate School's official deadline.**
- ✓ Department deadlines are:

September 1 for a February degree conferral

February 1 for a June degree conferral

June 1 for a September degree conferral

**Read Carefully:** The Application to Candidacy (ATC) form must be submitted to the Department a minimum of FOUR weeks before the Graduate School deadline. This will allow time to be reviewed and approved by the Director of Graduate Studies and Associate Dean for Academic and Student Affairs before it is forwarded to the Graduate School. Incomplete ATCs will be returned to the student. ATCs received after the Department deadline may result in delay of degree conferral.

**Outside Reader**

In addition to the required three member Committee, an outside reader must examine a FINAL copy of the doctoral dissertation. The student's Major Professor identifies and conducts all communication with the outside reader. An outside reader is a qualified individual from outside the University who normally holds a PhD in his or her respective field, holds a tenured/tenure-track faculty appointment (or comparable research appointment) and has completed

significant independent research/scholarship in the dissertation topic, and has no pre-existing relationship with the PhD candidate, Major Professor or Committee Member, and no active scholarly collaboration with these individuals within the past five years. If the outside reader formerly held an appointment at UB, there must be five years from appointment with no continuing ties to UB.

Before an outside reader can be appointed, they must first be approved by the Director of Graduate Studies using the **Outside Reader Appointment Form** found at this link:

<https://sphhp.buffalo.edu/content/dam/sphhp/epidemiology-and-environmental-health/pdf/students/outside-reader-appointment-form.pdf>

A copy of the outside reader's CV must also be attached. NOTE: The dissertation must not be forwarded to the outside reader before the reader has been approved by the Director of Graduate Studies AND the Major Professor and all Committee Members have approved a FINAL copy of the dissertation. After the **Outside Reader Appointment Form** has been approved by the Director of Graduate Studies, notification of approval will be sent to the student and their Major Professor.

Outside Reader Appointment Checklist:

- ✓ Complete **Outside Reader Appointment Form** (be sure to attach the outside reader's CV)
- ✓ Forward the **Outside Reader Appointment Form** and outside reader's CV to the Director of Graduate Studies

The outside reader provides an independent evaluation of the student's research. Normally this would be limited to an examination of the FINAL copy of the dissertation. In communicating their evaluation, the outsider reader must submit their comments using *the* **Outside Reader Response Form** found at this link:

<https://sphhp.buffalo.edu/content/dam/sphhp/epidemiology-and-environmental-health/pdf/students/outside-reader-response-form.pdf>.

The form should be forwarded to the outside reader by the Major Professor. The completed **Outside Reader Response Form**, along with the reader's comments, must be returned to the Program Coordinator before the dissertation defense can be scheduled. The outside reader's comments will be forwarded to the student, the student's Committee, and Director of Graduate Studies. Permission for the defense is contingent in part on the receipt of written approval by the outside reader with final approval determined by the dissertation Committee.

Outside Reader Response Checklist:

- ✓ provide outside reader with **Outside Reader Response Form**

### **Dissertation Defense**

All PhD students must complete and formally defend a dissertation approved by the student's Committee. The dissertation must be examined and approved by the Major Professor, all Committee Members, and the outside reader. The Major Professor, all Committee Members, and the Director of Graduate Studies must be present for the final defense. In extenuating circumstances, if all Committee Members cannot be present, a maximum of one Member may participate via conference telephone.

Students should allow a minimum of two weeks for their Major Professor/Committee Members to review the final copy of the dissertation. The Major Professor/Committee Members may set longer time limits if needed. Students should be respectful of faculty's time/workload. Approval of the final copy by the full Committee is required in order to schedule the defense.

In addition, a minimum of two weeks (14 days) notice must be allowed for the public posting of the defense. Prior to the posting of the defense, a final unbound copy of the dissertation approved by the student's Committee must be on file in the department for review two weeks before defense.



NOTE: the dissertation is bound AFTER the student has successfully defended their dissertation. The PhD dissertation defense consists of a 25-30 minute presentation followed by approximately 1 to 1.5 hours of questions. The presentation summarizes the dissertation work including the background, rationale for the work, study questions and/or hypotheses, methods, results, and conclusions and strengths and limitations. The presentation is followed by questions from the committee and then from anyone else in attendance. If the committee prefers, they can allow the audience to ask questions prior to the committee. After the question period, the student is dismissed and the committee comes to a consensus as to whether or not the student passed and if anything additional, with respect to the dissertation, needs to be addressed prior to completion of the degree. The student is admitted back to the room and the committee decision (with a possible request for items to be addressed) is communicated to the student.

Dissertation Defense Checklist:

- ✓ Present a departmental seminar while in final stages of data analysis
- ✓ Verify that an approved **Outside Reader Response Form** (with comments) has been received by the department
- ✓ When approval from the full committee is received, schedule an oral defense of the dissertation:
  - Confirm date with committee and the Director of Graduate Studies
  - Confirm availability of room
- ✓ Provide the Department with an approved final copy of the dissertation. NOTE: the dissertation should be bound AFTER the defense in the event the Committee requires minor revisions as a result of the defense.
- ✓ Notify the Graduate Program Coordinator of the defense date and title of the dissertation
- ✓ A room will be reserved and a public notice will be posted for the defense. A minimum of 14 days' notice must be allowed for the posting of the defense. A copy of the prepared **M-Form** and **Graduation Information Form** will be prepared and placed in the student's mailbox (see section on **M-Form**).

**M-Form**

The **M-form** (Multi-Purpose Form) is prepared by the Graduate Program Coordinator and brought by the student to the defense. This form must be signed by the Major Professor and all Committee Members at the defense certifying the student has successfully defended their dissertation. If as a result of the defense, revisions to the dissertation are required, the Major Professor retains the form and signs Section 3 only after the revisions have been examined and approved by all Committee Members. Signature of the Director of Graduate Studies is also required. The completed **M-Form** is submitted to the Program Coordinator allowing enough time to be received at the Graduate School by the official deadline posted on the Graduate School website at:

[http://grad.buffalo.edu/content/dam/www/graduate/documents/faculty/Mform\\_thesis.pdf](http://grad.buffalo.edu/content/dam/www/graduate/documents/faculty/Mform_thesis.pdf)

NOTE: The M-Form will not be forwarded to the Graduate School until a bound copy of the dissertation is submitted to the Department. In exceptional cases, the department may accept a bindery receipt in lieu of the bound copy.

M-Form Checklist:

- ✓ Present the **M-Form** at the dissertation defense for signature of the Committee and Director of Graduate Studies
- ✓ Submit the **M-Form** and **Graduation Information Form** to the Program Coordinator
- ✓ Submit bound copy of the dissertation

### ***Graduation Information Form***

The ***Graduation Information Form*** should be completed and brought to the dissertation defense. A copy of the form will be provided at the time of the defense.

### ***Submission of the Dissertation***

The Graduate School requires an electronic submission of the dissertation. Electronic submission can be made at [www.grad.buffalo.edu/Academics/ETD.html](http://www.grad.buffalo.edu/Academics/ETD.html). Guidelines for submission can be found on the website.

The Department requires one bound copy of the dissertation in black imitation leather with gold stamping. The title, student's name, degree and date should appear on the cover. The student's name, degree and date should also appear on the spine. Students should inquire whether or not their Major Professor and each Committee Member desires a bound copy prior to ordering one. Some faculty members may not wish to receive a bound copy. Ordering of bound copies for faculty members are the responsibility of the student.

Doctoral students should also complete the Doctoral Degree Recipients Survey at **(Required)**. <http://grad.buffalo.edu/Academics/ETD/Doctoral-Degree-Recipients-Survey.html>

Students should also consider the benefits of copyrighting their dissertation (not Required). [www.grad.buffalo.edu/Academics/ETD.html](http://www.grad.buffalo.edu/Academics/ETD.html).

### ***Guidelines for the Dissertation Document***

Several style manuals are available, including

- American Psychological Association. <http://www.apastyle.org/>
- Modern Language Association. <http://www.mla.org/>
- University of Chicago, Chicago Manual of Style. <http://www.chicagomanualofstyle.org/>

These sites will answer a host of questions regarding the technical aspects of preparing the thesis or dissertation. Copies of completed dissertations are available for reference in the Department or online at the Health Sciences Library.

Copies of completed dissertation are available for reference in the Department or online at the Health Sciences Library. At least two weeks should be allowed for binding the final copy. Copies should be bound in boards covered with black imitation leather, with the title and author's name embossed, not printed, on the front in gold and the author's last name, degree and year of conferral of the degree on the spine (also in gold).

Students should also provide bound copies for their Committee Members unless otherwise indicated.

### ***Research and Professional Conduct***

The diversity of faculty interest areas allows for many opportunities for research. All graduate students are expected to be actively involved in research throughout their educational experience. The University and department hold standards for professional conduct (see Warning on Plagiarism).

### ***Abstract Submission to Professional Meetings***

Students intending to submit abstracts to professional meetings must obtain written approval from their advisor PRIOR to submission. All abstracts must include a full citation of authorship.

### ***Time Limit to Complete the Degree***

The time limit for completing the PhD degree is SEVEN years from the date of first registration in the degree program, not including official leaves of absence, regardless of full- or part-time status. Of course, students will take seven years only in exceptional cases. It is expected that students will complete their degree within three to five years.

### ***Extension of Time to Complete the Degree***

Students unable to complete the PhD program within the time limit must petition the Graduate School for an extension of time to complete the degree provided there exists adequate reason to justify such a request. The Graduate School will not approve an extension for 'personal reasons,' you must be specific and present strong justification for your request. Students must provide a detailed description of work completed to date, a detailed month-to-month timeline for completion of the dissertation/degree, and a written endorsement from the advisor/major professor. Requests for extensions should be made at least two weeks prior to the start of the semester. The ***Extension of Time Limit for Degree Completion*** is available at the following link:

[www.grad.buffalo.edu/Academics/Forms-for-Students.html](http://www.grad.buffalo.edu/Academics/Forms-for-Students.html).

#### ***Extension of Time Checklist:***

- ✓ Complete ***Extension of Time Limit for Degree Completion***
- ✓ Be sure to sign form
- ✓ Obtain signature of advisor/major professor
- ✓ Attach written statement indicating
  - Cause of the delay
  - Detailed description of work completed thus far
  - Detailed month-to-month plan of work to be completed
- ✓ Attach written endorsement from advisor/major professor
- ✓ Forward to the Program Coordinator (do not send directly to the Graduate School)

### **Checklist for the PhD Degree Conferral**

- 72 graduate credit hours are completed with an overall 'B' (3.0) average (a minimum of 60 credit hours of graduate course work plus a maximum of 12 credit hours of dissertation credit).
- A minimum grade of 'B' (3.0) in all required course work.
- Successful completion of the Comprehensive Examination.
- Registration and attendance at the graduate seminars when registered full time, certified full time, and/or when registered for a minimum of one credit hour of Thesis Guidance or RPCI Natural Sciences Research.
- Departmental seminar presentation while in the final stages of the data analysis for the dissertation.
- Continuous registration from the date of matriculation (unless on an approved leave of absence).
- Successful completion of the General Preliminary Exam and Specialty Exam/Dissertation Proposal Defense.
- An approved **Application to Candidacy** is on file in the Graduate School with all necessary attachments, including original transcripts.
- Complete UB's Responsible Conduct of Research (RCR) Training Requirement.
- Submission of an approved **Abstract of Proposed Research Form**.
- If beyond the seven-year time limit for completion of degree, an approved **Extension of Time Limit to Complete the Degree** is on file in the Graduate School.
- Submission of the **Outside Reader Appointment Form** and **Outside Reader Response Form**.
- Review unofficial transcript and address any "I" or "J" grades.
- Successful completion and defense of the dissertation.
- M-Form** submitted to the Graduate School by the Graduate School's established deadlines.
- Graduation Information Form** submitted to the Department.
- One bound copy of the dissertation submitted to the Department and to each member of the student's Committee if desired.
- Electronic submission of the dissertation to the Graduate School.
- Doctoral Degree Recipients Survey** submitted to the Graduate School.

<b>Degree Conferral Timetable</b>			
<b>For Degree Conferral on:</b>	<b>February 1</b>	<b>June 15</b>	<b>September 1</b>
Application to Candidacy due to the Department	<b>September 1</b>	<b>February 1</b>	<b>June 1</b>
Application to Candidacy due at the Graduate School	<b>October 1*</b>	<b>March 1*</b>	<b>July 1*</b>
ALL required materials must be received in the Graduate School by the official deadline posted on the Graduate School website ( <a href="http://www.grad.buffalo.edu/Academics/Academic-Deadlines.html">www.grad.buffalo.edu/Academics/Academic-Deadlines.html</a> )			

\* **Read Carefully:** The Application to Candidacy (ATC) form must be submitted to the Department a minimum of FOUR weeks before it is due at the Graduate School. This will allow time to be reviewed and approved by the Director of Graduate Studies and Associate Dean for Academic and Student Affairs before it is forwarded to the Graduate School. Incomplete ATCs will be returned to the student. ATCs received after the Department deadline may result in delay of degree conferral.

## **PHD MULTIDISCIPLINARY TRAINING PROGRAM IN CANCER EPIDEMIOLOGY**

Within the PhD program, we offer a multidisciplinary training program in cancer epidemiology to focus your education in this critical area of study and research.

Please refer to the website for information on the PhD cancer training program:

<http://sphhp.buffalo.edu/epidemiology-and-environmental-health/education/epidemiology-phd/requirements-and-curriculum/cancer-epidemiology.html>

## **MD/PHD MEDICAL SCIENTIST TRAINING PROGRAM (MSTP)**

Through our integrated Medical Scientist Training Program, you can earn both an MD and a PhD in seven to eight years. This program is offered in collaboration with faculty and researchers in several clinical primary care departments in UB's School of Medicine and Biomedical Sciences.

Please refer to the website for information on the MSTP program:

<http://sphhp.buffalo.edu/epidemiology-and-environmental-health/education/md-phd-medical-scientist-training-program.html>

## **PHD COMPETENCES**

Found at <http://sphhp.buffalo.edu/epidemiology-and-environmental-health/education/epidemiology-phd/competencies.html>.

### PHD C1. Application of Methodology.

Demonstrate advanced understanding and application of methodologic issues used in the planning, execution, and interpretation of results from varied epidemiologic research study designs including the ability to critically evaluate these designs in both the review of literature and the development of research study proposals.

### PHD C2. Advanced Analysis and Data Interpretation.

Demonstrate expertise in advanced analysis and interpretation of data, including data cleaning, data file construction and management, and implementation of analytic strategies appropriate for the type of data, study design, and research hypothesis, with understanding of underlying assumptions, strengths and limitations of epidemiologic and biostatistical methods.

### PHD C3. Develop a Research Study Proposal.

Demonstrate proficiency in the development of a research study proposal (including grant proposals) that could be reviewed by an external group.

### PHD C4. Data Collection.

Participate in primary data collection.

### PHD C5. Written and Oral Communicate Skills.

Demonstrate effective written and oral skills for communicating the results of an epidemiologic research study in the form of an abstract, manuscript, poster, and/or oral presentation in an external peer-review setting.

### PHD C6. Culminating Dissertation.

Perform as a dissertation, a hypothesis-driven epidemiologic research study that includes a minimum of three aims publishable as manuscripts that demonstrate mastery and understanding in one or more overarching content area(s). This includes developing testable hypotheses using appropriate data and study design(s), conducting data analysis, and interpreting study results in epidemiologic and broader contexts.

**NOTE:** In addition to the competencies listed above, competencies of the Epidemiology MS degree will also be attained through the Epidemiology PhD program.

## UNDERGRADUATE COURSE LIST BY TOPIC AREA

EEH 301 Introduction to Epidemiology – for undergraduates only

## GRADUATE COURSE LIST BY TOPIC AREA

Courses using the SPM prefix are the same courses as EEH courses and this is reflected in the transcript.

\*\* Course designed for advanced doctoral students.

### **Epidemiologic Research Methods and Principles**

EEH 500 Introduction to Epidemiology for Public Health Professionals  
EEH 501 Principles of Epidemiology  
EEH 502 Advanced Methodology  
EEH 519 Principles of Measurement in Public Health  
EEH 553 Fundamentals of Grant Development\*\*  
EEH 602 Advanced Epidemiologic Study Designs\*\*  
EEH 627 Analysis of Health Data\*\*

### **Statistical Methods**

EEH 505 Application of Biostatistics to Epidemiology I  
EEH 506 Application of Biostatistics to Epidemiology II  
NUS 695 Advanced Statistical Techniques  
STA 503 Regression Analysis  
STA 517 Categorical Data Analysis  
STA 527 Introduction to Medical Statistics  
STA 575 Survival Analysis

### **Epidemiology of Exposures and Diseases/Conditions**

EEH 509 Alcohol Epidemiology  
EEH 511 Nutritional Epidemiology  
EEH 513 Epidemiology of Infectious Diseases  
EEH 515 Epidemiology of Cardiovascular Disease  
EEH 521 Special Topics, Obesity Epidemiology  
EEH 527 Cancer Epidemiology  
EEH 551 Epidemiologic Applications of Environmental Health  
EEH 561 Advanced Cancer Epidemiology and Prevention\*\*  
EEH 604 Fundamentals of Genetic Epidemiology\*\*  
EEH 614 Molecular Epidemiology\*\*  
EEH 618 Perinatal Epidemiology  
EEH 620 Epidemics and Outbreaks  
EEH 621 Advanced Topics in Cardiovascular Disease Epidemiology and Prevention\*\*  
EEH 622 The Role of Physical Activity in the Etiology, Treatment and Prevention of Chronic Disease\*\*

### **Environmental Health**

CIE 563 Air Pollution  
CIE 569 Hazardous Waste Management  
EEH 522 Selected Topics, Water, Sanitation, and Hygiene in Low- and Middle-Income Settings  
EEH 549 Environmental Health  
EEH 615 Geographic Medicine  
EEH 649 Advanced Environmental Health Sciences  
GEO 506 Geographical Information Systems

PMY 626 Toxicology Principles and Practice  
PMY 627 Toxicology at Target Organs  
URP 604 Community Food Systems and Planning  
URP 605 Built Environment and Health

## **Global Population Health**

APY 575 Gender and the Politics of Health in Africa  
CHB 500 Health for Refugee Populations  
CHB 625 Health Disparities  
EEH 534 Global Health  
GEO 512 Geography of Health

## **Health Services Administration**

CHB 523 Introduction to Program Planning and Evaluation  
EEH 507 Introduction to Health Care Organization  
EEH 522 Selected Topics, Evidence Based Decision Making in Health Services  
EEH 530 Administrative Theory and Practice for Public Health Practitioners  
EEH 536 Management for Public Health Practitioners  
EEH 537 Public Health Law  
EEH 539 Introduction to Health Economics  
EEH 542 Health Policy in the United States  
EEH 543 Public Health Practice  
EEH 632 Strategic and Operations Management in Health Care Systems

## **Health Behavior**

CHB 501 Study of Health Behavior  
CHB 550 Public Health and Population Wellbeing

## **Ethics**

PHI 640 Graduate Research Ethics  
RPN 541 Ethics and Conduct of Research

## **Seminars**

EEH 590 Graduate Seminar  
EEH 591 Public Health Seminar  
EEH 623 Preventive Medicine Seminar Series

## **Other Courses**

EEH 521 Special Topics  
EEH 522 Selected Topics  
EEH 535 Biological Basis of Public Health  
EEH 544 MPH Field Training  
EEH 599 Independent Study  
EEH 630 MPH Integrative Project  
EEH 700 Thesis/Dissertation Guidance  
EEH 950 Directed Research  
PTR 500 Cancer Control and Prevention  
RPN 530 Oncology for Scientists I  
RPN 532 Oncology for Scientists II



## UNDERGRADUATE COURSE DESCRIPTIONS

(All courses are 3 credit hours unless otherwise indicated. If prerequisites are required, the grade achieved in the prerequisite required course must be B or higher.)

### **EEH 301 Introduction to Epidemiology – for undergraduates only**

Epidemiology is the study of the distribution of health outcomes and their determinants in populations and its application to prevent and control disease. This course introduces principles and methods of epidemiologic investigation and epidemiology's role in public health. We will begin by discussing the nature of disease processes and then explore how epidemiologic methods are used to elucidate these processes by uncovering associations between diseases and the factors that influence their occurrence. Differences between experimental studies and observational studies in free-living human populations will be examined, followed by explanations of descriptive epidemiology, methods for measuring occurrence of risk factors and health outcomes, epidemiologic study designs, and analyzing and interpreting epidemiologic data. A variety of exposures and health outcomes will be used as examples to demonstrate the broad application of epidemiology in assessing and addressing public health problems.

(LaMonte)

Prerequisite: None

Fall Semester/Annual

## GRADUATE COURSE/SEMINAR DESCRIPTIONS

All courses are 3 credit hours unless otherwise indicated. If prerequisites are required, the grade achieved in the prerequisite course must be B or higher.

### **Courses - Department of Epidemiology and Environmental Health**

#### **EEH 500 Introduction to Epidemiology for Health Professionals**

This course is intended to provide a basic introduction to principles and methods of epidemiology for students who are not in the MPH programs or in the MS or PhD epidemiology programs, and whose career interests in a health-related field may include using epidemiologic information. The course emphasizes the conceptual aspects of epidemiologic investigation and application of these concepts in public health and related professions. Topics include overview of the epidemiologic approach to studying disease; the natural history of disease; measures of disease occurrence, association and risk; epidemiologic study designs; disease surveillance; population screening; interpreting epidemiologic associations; causal inference using epidemiologic information; and application of these basic concepts in the context of selected major diseases and risk factors of particular relevance to the Health Professions. Please note that this course cannot be used for degrees that require EEH 501 or as a prerequisite for courses that require EEH 501. (LaMonte)

Prerequisite: None

Spring Semester/Annual

#### **EEH 501 Principles of Epidemiology (4 credits)**

Introduction to the basic principles, methods, and uses of epidemiology. This course is a masters/doctoral level course designed to introduce epidemiology, its methods and its role in public health. A major portion of the course will be devoted to overviewing fundamental epidemiologic methods used in public health research and practice. The student will be familiarized with basic measures used in describing disease frequency in populations. Descriptive and analytic approaches to the study of disease will be explored, and a perspective on the role of epidemiologic methods in health services planning and evaluation will be provided. Problem solving exercises will be used to provide students with an opportunity to tabulate data and apply subject matter developed during lectures and in reading assignments. At the end of the course students should have a general understanding of the uses and limitations of epidemiologic inquiry. This understanding should provide the basis for applying epidemiologic concepts in work-related settings and in other courses in the public health curriculum. (LaMonte)

Prerequisite: None

Fall Semester/Annual

**EEH 502 Advanced Methodology**

Provides information on advanced topics in epidemiological methods. Emphasis is on various concepts related to the conduct of epidemiologic research. This course extends understanding of topics presented in EEH 501 and presents new topics in advanced epidemiologic methods. (Bonner)

Prerequisite: EEH 501

Spring Semester/Annual

**EEH 505 Application of Biostatistics to Epidemiology I (4 credits)**

The course has an emphasis on the application and interpretation of statistical tests commonly employed in epidemiologic research. It is not a mathematics course and so will not stress derivations of formulae but rather will emphasize statistics concepts and the application of statistical methods to test hypotheses in epidemiologic datasets. Topics include descriptive statistics, probability and probability distributions, point and confidence interval estimation, hypothesis testing for means, proportions, elementary non-parametric techniques, tests for categorical data, ANOVA, correlations and introduction to regression methods. Students will be introduced to SAS in weekly laboratory sessions to learn how to enter and manage datasets and perform data analysis using statistical methods covered in the course. (Ochs-Balcom)

Prerequisite: None

Fall Semester/Annual

**EEH 506 Application of Biostatistics to Epidemiology II (4 credits)**

This course is designed to teach students how to perform multivariate statistical analysis commonly used in epidemiologic studies. Topics include correlation, multivariate logistic and linear regression, regression diagnostics, modeling strategies, and survival analysis. Students learn SAS coding in the lab session. (Zhao)

Prerequisites: EEH 501, EEH 502 (concurrent registration), and EEH 505

Spring Semester/Annual

**EEH 507 Introduction to Health Care Organization**

Introduces students to the historical development, structure, operation, and current and future directions of the major components of the American health care delivery system. It examines the ways in which health care services are organized and delivered, the influences that impact health care public policy decisions, factors that determine priorities in financing health care services and the relationship of health care costs to measurable benefits. The course enables students to assess the role of organized efforts to influence health policy formulation, and the contributions of medical technology, research findings, and societal values to the evolving U.S health care delivery system. Class time is also devoted to exploring emerging policy, ethical and legal dilemmas resulting from medical and technological advances. (Young)

Prerequisite: None

Fall Semester/Annual

**EEH 509 Alcohol Epidemiology**

The basic concepts of epidemiology will be applied to alcoholism and alcohol-related problems. Methods used to study the prevalence of alcohol abuse and alcoholism will be critically examined and data will be reviewed on the relationship of alcohol consumption to other health problems. (Wieczorek)

Prerequisite: EEH 501

Spring Semester/Annual (not currently being offered)

**EEH 511 Nutritional Epidemiology**

Discusses the major strengths and weakness of dietary assessment methods used in epidemiologic studies to investigate associations between diet and disease (e.g., 24-hour recalls, food records, food frequency questionnaires, nutritional biomarkers). An introduction to nutritional epidemiologic analysis will be presented and discussed including analysis of nutrients, foods and dietary patterns. Critical evaluation of nutritional epidemiologic literature will be practiced. (Millen)

Prerequisite: EEH 501

Fall Semester/Biennial

**EEH 513 Epidemiology of Infectious Diseases**

Focuses on the theory and epidemiologic methods used in the epidemiologic study of infectious diseases. Emphasis is on the investigation of infectious disease outbreaks, evaluations of vaccine efficacy and effectiveness, and surveillance for infectious diseases of public health importance. The course includes an examination of the following infectious diseases, among others: HIV/AIDs, influenza, foodborne disease, sexually transmitted infections, dengue fever, and vaccine-preventable diseases. (Ram)

Prerequisite: EEH 501

Fall Semester/Annual

**EEH 515 Epidemiology of Cardiovascular Disease**

The pathophysiological basis of the major cardiovascular diseases is studied in relation to their clinical and epidemiological characteristics. Findings from major epidemiological studies and clinical trials are reviewed, and their implication for preventive measures are discussed. (Donahue)

Prerequisite: EEH 501

Fall Semester/Annual

**EEH 519 Principles of Measurement in Public Health**

An explanation of basic principles and methods of measurement and their application in epidemiologic research. These include development and use of different types of instruments and scales for measuring biological characteristics and behavioral and social constructs, questionnaire construction and validation, sampling, data collection methods, and fundamental principles underlying data analysis and interpretation. Students will gain practical experience developing a questionnaire relevant to an epidemiologic issue, role-playing interview techniques in class, and resolving issues related to other data collection methods, sampling, and preparing data for analysis. (Rudra)

Prerequisite: None

Fall Semester/Annual

**EEH 521 Special Topics**

Special topics determined by individual faculty interest.

Fall/Spring/Summer Semesters

**EEH 521 Special Topics, Obesity Epidemiology**

The 3-credit advanced graduate level course will cover the various topics regarding the global obesity epidemic from multiple perspectives, ranging from methodological issues, the causes and drivers, health consequences, to intervention and policy issues. The course will help the students to develop a comprehensive, multidisciplinary and in-depth understanding of this serious, complex, global health problem, the related research development, and intervention options. Examples of topics covered include: the assessment of body composition; definition and classification of obesity in children and adults and in different populations and ethnic groups; the use of local vs. international standards; the scope of the problem in the U.S. and worldwide; the multilevel risk factors and drivers for the global epidemic; intervention options including related policy options and debates; and research methods commonly used in obesity epidemiological research. By end of the class, students will understand and can use study designs and epidemiologic methods to conduct obesity research, can critically analyze studies on obesity epidemiology, and have a critical view on evidence-based policy implications of recent obesity research findings. The course will help expose the students to update research in the field and will also provide direct discussion with leading experts in the field. (Wang)

Prerequisite: None

Spring Semester/Annual

**EEH 522 Selected Topics**

Selected topics determined by individual faculty interest.

Fall/Spring/Summer Semesters

**EEH 522 Selected Topics, Evidence Based Decision Making in Health Services**

This course is designed to provide students with a foundation in the various research methodologies employed in health services research. Emphasis is placed on applied research skills pertinent to health services administration. The course will expose students to the importance of the research question, strengths and limitations of various study designs, measurement issues, analytic approaches, outcomes, and the ethical conduct of research. While this course builds upon the epidemiologic model it is distinct in that the focus is on applying the research method to arriving at effective decision making in the health services. Students will review, and critically analyze research designs to better understand how data are gathered and analyzed to arrive at objective, evidence based decisions. Emphasis is placed on critical thinking in design of research studies and evaluation of the published literature. (Michalek)

Prerequisite: EEH 501

Fall Semester/Annual

**EEH 522 Selected Topics, Water, Sanitation, and Hygiene in Low-and Middle-Income Settings**

This course is designed to introduce students to challenges in water, sanitation, and hygiene for low-income countries and their implications for global health and inequities. The course will offer an interactive learning experience for students and provide multidisciplinary perspectives ranging from public health, environmental health, engineering, architecture, policy, and planning. This course welcomes students from all disciplines. (Ram)

Prerequisite: None

Spring Semester/Annual

**EEH 527 Cancer Epidemiology**

Provides an in depth overview of the epidemiology on various cancer sites. Standard methodologies and analytic techniques used in cancer epidemiology will be covered. Attention given to critical review of known or suspected cancer risk factors. (Moysich)

Prerequisite: None

Spring Semester/Annual

**EEH 530 Administrative Theory and Practice for Public Health Practitioners**

Provides students with an overview of the development of management and leadership concepts within health care organizations. Delves into the strategic and policy issues challenging health care systems (access, financing, defining and quantifying quality, etc.). Provides a practical framework of the professional competencies and skills needed to be an effective administrator within a complex health care system. (Buckley)

Prerequisite: None

Spring Semester/Annual

**EEH 534 Global Health**

Provides an overview of compelling public health problems among the world's poor. Topics addressed will include infectious diseases such as malaria, HIV/AIDS, and tuberculosis; the rise of tobacco-related disease; the role of water, hygiene, and sanitation in the prevention of disease; maternal and neonatal mortality; surveillance; and disaster response in the resource-poor setting. Students will gain practical experience in developing and presenting strategies for the implementation and evaluation of public health programs in the resource-poor setting. (Ram)

Prerequisite: None

Fall Semester/Annual

**EEH 535 Biological Basis of Public Health**

Intended for students with little or no background in the biological sciences and health professions. The course provides a broad overview of public health topics related to human health and disease focusing on disease etiology with particular emphasis on parasitic and microbial infections plus a review of the anatomy, physiology, and pathology of selected major organ systems and associated diseases of public health importance. (Li)

Prerequisite: None

Spring Semester/Annual

**EEH 536 Management for Public Health Practitioners**

Provides students with an overview and knowledge of various management topics relevant to operating the management role in public health organizations. Provides knowledge and skills to better understand the role of finance and accounting in public health management, the principles and techniques of supervision in the public health setting, and approaches to quality management and quality improvement in health care and public health practice.

(Noe)

Prerequisite: None

Spring Semester/Biennial

**EEH 537 Public Health Law**

Provides an understanding of how the law serves as a tool in advancing a public health agenda. The class is interdisciplinary, including law students and students from public health-related fields. The course examines the history of public health law, the tension between state and federal governments in the regulation of the public's health, and the conflicts between governmental powers and individual autonomy. The course considers the standard practice of public health professionals to prevent disease and promote healthy behaviors in the wake of emerging public health challenges such as racial disparities in health care, a potential flu pandemic, the obesity epidemic, and the abortion debate. (Wicher)

Prerequisite: None

Fall Semester (not currently offered)

**EEH 539 Introduction to Health Economics**

Provides the ability to apply economic reasoning to health care markets. Topics include: organization of the hospital, payment systems, costs and charges, the market for physician services, cost-effectiveness analysis, outcomes research, and health care reform. (Ludwig)

Prerequisite: None

Spring Semester/Annual

**EEH 542 Health Policy in the United States**

Introductory course that explores the U.S. public policymaking process and its impacts upon the determinants of the population's health status including environmental, socio-cultural, ethnic, demographic, economic, lifestyle, service access and other factors. The course provides an historical overview of benchmark developments in U.S. health care, highlighting significant influences that transformed the industry into its current form. With the incremental evolution of U.S. health policy as the context, the course discusses individual and societal values concerning health and the operation of the political system. Each step of the policymaking process highlights the roles of key players in the legislative, judiciary and executive branches of government. The course identifies and characterizes health care system stakeholders ranging from private citizens to powerful industry lobbying organizations and the means and methods used to influence the formulation, implementation and modification of health policy. The course concludes with a discussion of the characteristics and role of political competence in the U.S. policymaking process. (Young)

Prerequisite: None

Spring Semester/Annual

**EEH 543 Public Health Practice**

Designed to provide students with the practice-based knowledge and skills necessary for the functional management of local, state, and federal health agencies. Topics include: administrative structure, governance, management issues, financing of public health programs, public budgetary development and approval process, political and medial influence on public health programs, intergovernmental relations, public sector-private sector collaboration, application of legislative and regulatory principles, public health program planning, and media relations and risk communication. (Rowe)

Prerequisite: None

Spring Semester/Annual

**EEH 544 MPH Field Training (1-6 credits)**

Allows students to synthesize the knowledge and skills developed during the academic portion of their program in a practical application setting. Field training experiences will be of various types depending upon the student's interest and concentration area. (Staff)

Prerequisite: None

Fall/Winter/Spring/Summer Semesters/Annual

**EEH 549 Environmental Health**

Introductory course that explores the role of environmental factors in health with an emphasis on characterization, assessment, and control of environmental hazards. Topics include application of toxicologic and epidemiologic methods in assessing risk and setting exposure limits; the nature of and control of hazards associated with food, water, air, solid and liquid waste, occupation, and radiation; risk communication and management, environmental justice; and environmental laws. The course concludes by examining the impact of human activity, such as energy use and pollution, on the environment and how human-induced environmental change, in turn, impacts public health and that of the planet as a whole. (Ren)

Prerequisite: None

Spring Semester/Annual

**EEH 551 Epidemiologic Applications of Environmental Health**

Provides epidemiology and environmental health students with a working knowledge of epidemiologic theory and practice applied to issues of environmental health. Case studies and specific environmental issues will be used to illustrate the application of epidemiologic theory to understand the role of environmental factors in the etiology of disease. (Mu)

Prerequisites: EEH 501, EEH 505

Fall Semester/Annual

**EEH 553 Fundamentals of Grant Development**

This course is targeted for advanced PhD students who are committed to obtaining extramural support for scientific research. This course will involve interactive class discussion of readings focused on planning and writing grants, with emphasis on funding from the National Institutes of Health (NIH). This class will cover how to obtain information on funding opportunities, understanding the language of grants, development of the common sections of grant proposals, and understanding the grant review process. This course will also involve an introduction to budget planning and Institutional Review Board (IRB) requirements for grant submission. All students will be required to design and write a research proposal of their choice (with the Instructor's approval) according to NIH guidelines. Students who enroll in the course should have a grant proposal topic of interest to them at the start of class. In addition to class discussions on assigned readings, class time will also be used as a workshop for grant writing and feedback on grant drafts. (Millen)

Prerequisites: EEH 501, EEH 502, and EEH 505

Fall Semester/Biennial

**EEH 561 Advanced Cancer Epidemiology and Prevention**

Seminar course focused on an understanding of and critical evaluation of research in cancer biology and epidemiology including an in-depth examination of methodological issues. (Freudenheim)

Prerequisites: EEH 501, EEH 502, EEH 505, and EEH 527

Spring Semester/Biennial

**EEH 590 Graduate Seminar (0 credits)**

Intended to inform faculty and MS and PhD students in EEH about new and continuing areas of research and public policy issues in public health and epidemiology. Invited speakers will include EEH and Roswell Park faculty, graduate students, faculty from other departments at the University at Buffalo, and nationally and internationally recognized experts in public health and epidemiology from outside the University.

Prerequisite: None

Fall/Spring Semesters/Annual

**EEH 591 Public Health Seminar (0 credits)**

Seminar series addressing practice oriented public health topics for MPH students.

Prerequisite: None

Fall/Spring Semesters/Annual

**EEH 599 Independent Study (1-9 credits for PhD, 1-6 credits for MS)**

For students with special interests not satisfied through the formal course work, there is an opportunity to pursue independent study under the direction of a faculty member.

Prerequisite: Permission of instructor

Fall/Winter/Spring/Summer Semesters/Annual

**EEH 602 Advanced Epidemiologic Study Designs**

Advanced course on developing and designing studies using the three major study designs in epidemiologic and public health research: cohort studies, case-control studies, and clinical trials. Topics covered will include developing the study question; identifying, recruiting, and enrolling the study population; exposure assessment; ascertaining valid outcomes; bias and confounding; analytic considerations; randomization and blinding; monitoring adverse events; participant well-being and ethical considerations; and reporting and interpreting study findings. Students will gain practical experience in critiquing published research that uses each of the study designs, and in developing a research question and designing an appropriate study to address the question. (Freudenheim, Marshall, Donahue)

Prerequisites: EEH 501, EEH 502

Fall Semester/Annual

**EEH 604 Fundamentals of Genetic Epidemiology**

An overview of the field of genetic epidemiology including how to study the genetic causes of phenotypic variation. Topics include human genetics, molecular genetics, and population genetics as they apply to the conduct of a genetic epidemiology study. The concepts of heritability and linkage disequilibrium are covered. The course covers more detailed aspects of segregation, linkage, and association as they are used in family- and population-based studies to search for disease-causing genes. Current concepts in the genetics of complex traits as well as an exploration of online databases used in genetic epidemiology are included. The course includes in-class computer laboratory exercises using standard software tools to analyze genetic data. (Ochs-Balcom)

Prerequisites: EEH 501, EEH 502, and EEH 505

Spring Semester/Biennial

**EEH 614 Molecular Epidemiology**

Molecular epidemiology deals with the contribution of potential genetic and environmental risk factors, identified at the molecular and biochemical level, to the etiology, distribution and control of disease in populations. An understanding of molecular mechanisms involved in disease etiology, and their potential uses in epidemiology, will be the focus of the course. This course will lay the groundwork for reading, interpreting, and critically appraising molecular epidemiologic studies, as well as incorporating molecular methodology into one's own research designs. (Bonner)

Prerequisites: EEH 501, EEH 502, and EEH 505

Fall Semester/Biennial

**EEH 615 Geographic Medicine**

An introduction to medical anthropology and geography and an intensive review of the communicable and nutritional diseases found in isolated populations, in developing countries, and among the disadvantaged. (Staff)

Prerequisite: None

Spring Semester/Annual (not currently being offered)

**EEH 618 Perinatal Epidemiology**

Provides an overview of the current field of perinatal epidemiology, including study designs, exposure and outcome measurement, data resources, and methodological challenges most relevant to the field. Topics of interest will include pregnancy and delivery complications, maternal and fetal morbidities and mortality, and maternal and paternal adverse exposures. (Wen)

Prerequisite: EEH 501

Fall Semester/Biennial

**EEH 620 Epidemics and Outbreaks**

Advanced course studying recent outbreaks of infectious disease. Each session will deal with an individual agent, review recent outbreaks, and discuss public health implications. Emphasis will be placed on epidemiologic principles, maneuvers by public health authorities to investigate and contain outbreaks, and relationships to the media. Topics and outbreaks will be selected with immediacy and relevance to public health. (Lindstrom)

Prerequisite: EEH 513

Spring Semester/Biennial

**EEH 621 Advanced Topics in Cardiovascular Disease Epidemiology and Prevention**

Designed for advanced students who are interested in focusing their research or clinical work on the epidemiology and prevention of cardiovascular diseases. Major emphasis will be on methodological issues in CVD, disease etiology, and primary and secondary prevention of CVD. Intended to develop critical skills for independent CVD researchers and clinicians. (Donahue)

Prerequisite: EEH 515

Spring Semester/Annual

**EEH 622 The Role of Physical Activity in the Etiology, Treatment and Prevention of Chronic Disease**

Designed for students who are interested in expanding their knowledge and understanding of physical activity research and the public health implications of an active or inactive lifestyle. The major emphasis will be on methodological issues in physical activity research, and the role of physical activity in health and chronic disease. The course is intended to develop critical thinking, research, and decision-making skills for independent researchers and clinicians. (LaMonte)

Prerequisite: EEH 501

Spring Semester/Biennial

**EEH 623 Preventive Medicine Seminar Series (0 – 3 credits)**

Designed to provide a broad education in general preventive medicine. Seminars complement the content of course offerings in the postgraduate (PGY 2) year and provide guided exposure to each resident to subject matter basic to the field of preventive medicine and medical management. (Li)

Prerequisite: General Preventive Medicine Resident

Fall/Spring Semesters/Annual

**EEH 627 Analysis of Health Data (4 credits)**

Provides students in the health sciences with practical experience in preparing, analyzing and reporting findings from epidemiologic and other health-related data. Using existing epidemiologic data sets, students will complete assignments related to data cleanup, data file construction and management, basic descriptive statistics, analytical strategies, biostatistical analysis, and data interpretation. Course requirements will include analysis and reporting of findings from analysis of existing health-related data. (McCann)

Prerequisites: EEH 506, or permission of instructor

Fall Semester/Annual

**EEH 630 MPH Integrative Project (2-3 credits)**

The purpose of the integrative projects is for MPH students to integrate core public health knowledge and skills. It will take the form of a paper prepared during the concluding semester of the student's program. (Staff)

Prerequisite: Permission of instructor

Fall/Winter/Spring/Summer Semesters/Annual

**EEH 632 Strategic and Operations Management in Health Care Systems**

Application of management knowledge and skills in the strategic guidance and operational direction of health care systems service organization. Attention is given to unique aspects of the challenge of managing the delivery of health services, particularly to managing relationships with medical staff, regulatory relationships with medical staff, regulatory bodies, other professional groups and third party payers. The integration of management functions such as finance and accounting, marketing, human resources, and service production, amidst rapidly changing expectations will also be covered in assigned case analyses. (Rogers)

Prerequisite: None

Spring Semester/Annual

**EEH 649 Advanced Environmental Health Sciences**

Advanced course designed to provide students with the latest knowledge and an in-depth discussion of how the environment interacts with human biological systems and potentiates various health effects over the life cycle. The course includes a detailed examination of environmental hazards, exposure assessment, human susceptibility, biological response pathways, application of biomarkers in environmental health studies and the disease burden of environmental exposure. The course focuses on three major environmental topics: air pollution, water pollution and food safety. (Ren)

Prerequisites: EEH 501 and EEH 549

Spring Semester/Annual

**EEH 650 Environmental Toxicology and Risk Assessment (2 credits)**

Provides students with advanced level education in the physical and chemical properties of common environmental contaminants of public health importance, environmental fate of these compounds, the primary exposure routes, and the mechanisms of action. The course will also educate students on synthesizing relevant scientific evidence to conduct risk characterization and assessment to inform risk management, communication, and policy actions to mitigate environmental health hazards. (Olson)

Prerequisites: PMY 626, PMY627

Spring Semester/Annual (not currently being offered)

**EEH 700 Thesis/Dissertation Guidance (1-12 credits for PhD, 1-6 credits for MS)**

Through the thesis/dissertation, students will design, implement, complete and report on significant and original, independent epidemiologic research. Students will conduct their research under the supervision of their major professor and a thesis/dissertation committee. (Staff)

Prerequisite: None

Fall/Winter/Spring/Summer Semesters/Annual

**EEH 950 Directed Research (1-6 credits)**

Students will engage in research under the mentorship of a faculty member. (Staff)

Prerequisite: Permission of instructor

Fall/Winter/Spring/Summer Semesters/Annual



## **Relevant Courses – Other Departments and Roswell Park Cancer Institute**

Prefix Department, Roswell Park Cancer Institute

APY Department of Anthropology  
CHB Department of Community Health and Health Behavior  
CIE Department of Civil, Structural and Environmental Engineering  
GEO Department of Geography  
NUS School of Nursing  
PHI Department of Philosophy  
PMY Department of Pharmacology and Toxicology  
PTR Roswell Park Cancer Institute  
RPN Roswell Park Cancer Institute  
STA Department of Biostatistics  
URP Department of Urban and Regional Planning

### **APY 575 Special Topic - Gender and the Politics of Health in Africa**

Course description to be added at a later date.

Prerequisites: TBD

Fall/Spring Semesters

### **CHB 500 Special Topics Health for Refugee Populations**

This course provides an introduction to health issues, barriers to care, and services for Western New York's (WNY) refugee population. Through the course, students will explore major health issues impacting refugee communities, identify and prioritize major health issues and unmet needs for this underserved population, and identify, design or recommend a feasible service or intervention model to address the identified issue or issues. Major health issues that will be explored include physical, mental, sociological and spiritual health. Barriers that will be assessed include cultural, social, physical, and financial challenges. The course objectives will be met through faculty and student engagement with refugee community providers and client representatives. Course material will be facilitated from an interprofessional education perspective through guest speakers across multiple health domains, service agency presentations, small group work, and experiential learning through population exposure, immersion, and service. Activities will focus on teamwork and collaboration across health professions, community interaction, engagement and service, needs assessment research, epidemiology of the health issue/s, ethics and values, roles and responsibilities, decision-making, intervention assessment, planning and presentation. The main outcome of the course will be drafting and presentation of a proposed intervention to a service agency or agencies that will help them address priority health issues and/or unmet health needs of WNY refugee communities in an interprofessionally collaborative manner. (Collins, Kozlowski)

Prerequisite: None

Fall/Spring Semesters

### **CHB 501 Study of Health Behavior**

Examination of selected approaches for explaining people's health-related behaviors (i.e., cultural, economic, social structure, social psychological), and a review of intervention strategies designed to modify health-related behaviors. (Kiviniemi)

Prerequisite: None

Fall Semester

### **CHB 523 Introduction to Program Planning and Evaluation**

Models and principles of program planning and evaluation are presented and contrasted. Data gathering techniques, design considerations and implementation strategies are covered. Other topics include systems theory applications, strategic planning methods, proposal development and report writing. (Gage-Bouchard)

Prerequisite: None

Fall Semester

**CHB 538 Community Health Assessment and Surveillance**

This course identifies elements in a community responsible for modifying the health behavior of the individual. Provides the needed information for designing plans to improve the health status of the community and its members. The course will help to identify quantitative and qualitative methods to conduct community health assessment, evaluation of community intervention programs, and the utilization of public health surveillance data to understand community health profiles. Case-studies and a practical experience will provide the students with training on how to work as a group with members of the community. (Rowe)

Prerequisite: None

Spring Semester

**CHB 550 Public Health and Population Wellbeing**

Provides an understanding of and appreciation for population approaches to improving the health of our nation and the world, as well as knowledge of various career paths in public health. The content will include public health perspectives on health, wellness, illness and population well-being. (Kiviniemi)

Prerequisite: None

Fall Semester

**CHB 625 Health Disparities**

Health Disparities is a PhD-level elective designed to give students an in-depth understanding of the social determinants of health. The course will take a multi-disciplinary approach to examining differences in health status associated with race, ethnicity, education, income, disability, geographic location, gender, and sexual orientation. We will examine the multiple pathways through which these differences are produced and reinforced, including discrimination, stigma, social network processes, culture, and health care experiences. We will also discuss methods for conducting research and intervening in disadvantaged communities. The course will provide historical and theoretical perspectives on the problem, provide a critical examination of empirical support for various explanatory pathways, and will cover approaches to studying and reducing health disparities. The course will prepare students to conduct independent research on health disparities and health-related research with disadvantaged communities, satisfying many of the Community Health and Health Behavior PhD competencies. Instructor permission is required for enrollment unless student is in the CHHB PhD Program

Prerequisite: None

Fall Semester

**CIE 563 Air Pollution**

Introduces the fundamental aspects of the science and technologies associated with air pollution. Topics include: atmospheric chemistry and basic chemical kinetics; photochemical reactions in the atmosphere; aerosol physics and chemistry; sources of outdoor and indoor air pollution; climatic effects; pollution reduction technologies; gas phase and aerosol measurement and analytical techniques; health effects; atmospheric meteorology; and plume dispersion and transport models. (Atkinson)

Prerequisite: None

Fall Semester

**CIE 569 Hazardous Waste Management**

Waste management continues to be a major global challenge for environmental engineers and other stakeholders. Technical, regulatory and societal aspects of Hazardous and Solid Waste Management are addressed. Topics related to Hazardous Waste include: (1) evolution of current laws dealing with hazardous waste disposal and cleanup; (2) investigation and remediation of contaminated sites; and (3) environmental fate and transport of hazardous chemicals. A strong emphasis is placed on communication of technical issues to the public. (Rabideau)

Prerequisite: None

Fall Semester

**GEO 506 Geographical Information Systems (4 credits)**

Covers the development and basic principles of geographic information systems and practical experience in the use of these systems, and also the technology used to represent observations about the geographic world. Students will learn to identify and describe hardware components of GIS; state differences between database models; describe and evaluate typical GIS operations; identify types of GIS products; identify various applications of GIS; and understand differences between raster and vector systems. (Staff)

Prerequisite: None

Fall/Spring Semesters

**GEO 512 Geography of Health**

This course provides an introduction to a variety of geographic dimensions of health. Readings are taken from the current literature so that students are up-to-date with respect to the latest findings in this rapidly changing field. (Aldstadt)

Prerequisite: None

Fall Semester

**NUS 695 Advanced Statistical Techniques**

This course focuses on the applications of advanced statistical techniques and interpretations of findings produced by these techniques, taking into consideration the design of the research and the theoretical models to be tested or developed. This course consists of logistic regression, multivariate ANOVA, discriminant analysis, structural equation modeling and hierarchical linear/nonlinear modeling. (Wu)

Prerequisite: NUS 694

Spring Semester

**PHI 640 Graduate Research Ethics (2 credits)**

This course provides a comprehensive introduction to the field of the ethics of scientific research and will satisfy all Federal requirements for the education of graduate students and postdoctoral fellows. The course will deal with the following topics: fraud, plagiarism and other unacceptable behaviors, scientific publication and the rules of the road, the role of whistleblowers in science, human subjects research and clinical matters, animals in research, cultural issues in research, biotechnology and the new medicine, intellectual property and who owns what.

Prerequisite: None

Spring Semester

**PMY 626 Toxicology Principles and Practice (2 credits)**

Designed to introduce students to the basic principles and practice of toxicology. Chemical mutagenesis and carcinogenesis will also be included, with an emphasis on understanding mechanisms for these responses. An overview of risk assessment will include quantitative aspects of cancer and non-cancer based risk assessments. (Olson)

Prerequisite: None

Fall Semester

**PMY 627 Toxicology at Target Organs (2 credits)**

Provides a systemic approach to toxicology. The adverse effects of several classes of chemicals will be investigated at specific target organs. An emphasis will also be placed on understanding the mechanism(s) for the adverse responses of specific agents at a given target site. (Olson)

Prerequisite: None

Fall Semester

**PTR 500 Cancer Control and Prevention**

The purpose of this course is to instruct students in the principles and practice of cancer prevention and control. The course focuses on concepts, methods, issues and applications related to the field. Students will gain experiences through didactic lectures, critical appraisal of the literature, group discussion and presentations. (O'Connor)

Prerequisite: None

Fall Semester

**RPN 530 Oncology for Scientists I (4 credits)**

Defines the cancer cell morphologically, as well as molecularly, covering topics such as the cell cycle, cancer-associated genes, regulation of cancer cell expression, cancer genetics, carcinogenesis, metastasis, apoptosis, and laboratory research techniques. (Block)

Prerequisite: None

Fall Semester

**RPN 532 Oncology for Scientists II (4 credits)**

Builds upon the theoretical basis of the previous semester, covering the immune system, hormones, chemotherapy and drug development. A large part of the semester deals with the clinical and pathological description of various organ systems presented by Institute medical staff. Ancillary lectures on cancer epidemiology, prevention, statistics, bioinformatics, and clinical treatment (chemotherapy, diagnostic imaging, radiation therapy, photodynamic therapy) are also presented. The human dimensions of the disease are addressed by presentations on pain and the psychological aspects of cancer. The students will also have the opportunity to meet with patients and their treating physicians. This is the course description provided by the course assistant. From the Roswell website. (Block)

Prerequisite: RPN 530

Spring Semester

**RPN 541 Ethics and Conduct of Research (1 credit)**

The topics covered include: scientific writing and data handling, biohazards and the worker's right to know, animal use in research, research with human subjects, peer review, proprietary rights, conflict of interest/science and industry, human genome project, science and the media, medical and health care ethics, and identifying and reporting misconduct. (Karin)

Prerequisite: None

Fall Semester

**STA 503 Regression Analysis**

Regression analysis and introduction to linear models. Topics: Multiple regression, analysis of covariance, least square means, logistic regression, and non-linear regression. This course includes a one hour computer lab and emphasizes hands-on applications to datasets from the health sciences. (Mastare)

Prerequisite: Knowledge of calculus and basic statistics

Fall Semester

**STA 517 Categorical Data Analysis**

Provides students with useful methods for analyzing categorical data. Topics: Cross-classification tables, tests for independence, log-linear models, Poisson regression, ordinal logistic regression, and multinomial regression for the logistic model.

Prerequisites: STA 504 and STA 522. Concurrent registration in prerequisites is admissible.

Fall Semester

**STA 527 Introduction to Medical Statistics (4 credits)**

Topics: Descriptive statistics, probability concepts (independence, conditional probability), probability distributions of random variables, sampling distributions, estimation, confidence intervals, hypothesis testing, analysis of variance procedures, linear regression, nonparametric methods. Computers and statistical packages will be used throughout the course. No extensive computer experience is required. (Kuhlmann)

Prerequisite: None

Fall Semester

**STA 575 Survival Analysis**

Provides an advanced course on the use of life tables and analysis of failure time data. Topics: Use of Kaplan-Meier survival curves, use of log rank test, Cox proportional hazards model, evaluating the proportionality assumption, dealing with non-proportionality, stratified Cox procedure, extension to time-dependent variables, and comparison with logistic regression approaches. (Hutson)

Prerequisite: STA 504 or STA 522

Concurrent registration in prerequisites is admissible.

Fall Semester

**URP 604 Community Food Systems and Planning**

The quality of a community's food system has significant social, environmental, economic, and health implications. This graduate seminar introduces students to the fundamentals of food system planning. Students learn to critically analyze a community's food system and learn the ways in which a community's food system can be strengthened through municipal policy and planning. (Raja)

Prerequisite: None

Spring Semester

**URP 605 Built Environment and Health**

The discipline of planning claims to improve the welfare of people and their communities by creating more convenient, equitable, healthful, efficient, and attractive places for present and future generations yet is rarely explicitly addressed in traditional planning practice. A growing body of evidence suggests that social and environmental determinants--shaped by planning--play a key role in public health outcomes, especially in the recent increase in chronic disease in the United States. This graduate seminar is about exploring the possibilities, limits, and challenges of planning and designing communities to promote public health. (Kang)

Prerequisite: None

Fall Semester

## EPIDEMIOLOGY AND ENVIRONMENTAL HEALTH TEACHING FACULTY

The following EEH teaching faculty list includes individuals in the “Faculty Directory” on the EEH webpage, individuals teaching required courses or elective courses listed under the MPH, MS, and PhD degrees described in the handbook, or faculty currently or recently involved in EEH student mentorship.

**Christine Ambrosone**, PhD, University at Buffalo. Chair, Department of Cancer Prevention and Control and Professor of Oncology, Division of Cancer Prevention and Population Sciences, Roswell Park Cancer Institute; Research Professor, Epidemiology and Environmental Health. Major interests: molecular epidemiology, cancer treatment outcomes, risk factors associated with the development of breast cancer.

**AnneMarie Block**, PhD, University at Buffalo. Assistant Research Professor, Department of Pathology and Anatomical Sciences and Associate Professor of Oncology, Roswell Park Cancer Institute. Major interest: cytogenetics and sister chromatid exchange.

**Matthew Bonner**, PhD, MPH, University at Buffalo; MPH, University of Rochester. Associate Professor, Epidemiology and Environmental Health. Major interests: environmental and occupational epidemiology, cancer epidemiology, pesticides, air pollution, radon, polycyclic aromatic hydrocarbons, phthalates.

**Elizabeth Gage-Bouchard**, PhD, University at Buffalo. Assistant Professor, Department of Community Health and Health Behavior. Major interests: socioeconomic health disparities.

**Melinda Buckley**, CMA., MS, St. Bonaventure University. Research Instructor, Epidemiology and Environmental Health. Major interest: health services financial and administrative management.

**Richard Donahue**, PhD, MPH, University of Pittsburgh; MPH, University of Michigan. Professor, Epidemiology and Environmental Health. Major interests: epidemiology, insulin resistance, population sciences, diabetes, cardiovascular disease.

**Jo Freudenheim**, PhD, University of Wisconsin-Madison. UB Distinguished Professor and Interim Chair, Epidemiology and Environmental Health. Major interests: molecular epidemiology, nutrition, life course epidemiology, cancer, especially breast cancer, microbiome and cancer.

**Gregory Homish**, PhD, University of Pittsburgh. Associate Professor, Department of Community Health and Health Behavior. Major interests: social networks and substance use, emergency preparedness, and quantitative research methods.

**Alan Hutson**, PhD, University of Rochester. Chair and Professor, Biostatistics. Major interests: bioinformatics, clinical trials, computational methods, and order statistics

**Andrew Hyland**, PhD, University at Buffalo. Research Scientist, Department of Health Behavior, Division of Cancer Prevention and Population Sciences, Roswell Park Cancer Institute; Research Professor, Epidemiology and Environmental Health. Major interests: evaluation of tobacco policies, cancer and tobacco surveillance, biostatistical support.

**Kelly Kamm**, PhD, University of Buffalo, Epidemiology and Environmental Health. Major interests: low technology solutions to improve child health in low income settings, nutrition, hygiene, and the gut microbiome as risk factors for diarrhea and environmental enteropathy.

**Norman Karin**, PhD. University of Tennessee. Associate Professor of Oncology at Roswell Park Cancer Institute. Major interests: studies to identify mechanisms by which growth factors and physical stimuli regulate the function of bone cells, particularly in the context of fracture healing.

**Marc Kiviniemi**, PhD, University of Minnesota. Associate Professor, Department of Community Health and Health Behavior. Major interest: social health and the understanding affective associations.

**Dietrich W. Kuhlmann**, PhD, University of Missouri. Department Chair, Canisius College.

**Michael LaMonte**, PhD, MPH, University of Utah; MPH, University of South Carolina. Research Associate Professor, Epidemiology and Environmental Health. Major interests: physical activity/functional capacity; epidemiology of cardiovascular disease and periodontal disease, preventive medicine, healthy aging with focus in postmenopausal women.

**Carl Li**, MD, MPH, St. Louis University School of Medicine; MPH, University of Michigan School of Public Health. Associate Director, Preventive Medicine Residency Program; Research Assistant Professor and Director of Graduate Studies, Epidemiology and Environmental Health. Major interests: preventive medicine, public health, public health workforce.

**Heather Lindstrom**, PhD, Case Western Reserve University. Research Assistant Professor, Epidemiology and Environmental Health, Department of Emergency Medicine, Erie County Medical Center. Major interest: intersection of public health and emergency medicine, sexually transmitted infections, aging and health communication/risk perception

**Walter Ludwig**, RPh, MBA, University at Buffalo. Research Instructor, Epidemiology and Environmental Health. Major interests: health care operations, new product development, financial analysis.

**Changzong Ma**, PhD, Nankai University. Associate Professor, Biostatistics. Major interests: statistical genetics and experimental design.

**Martin Mahoney**, MD, PhD, University at Buffalo. Director, Cancer Training Track, General Preventive Medicine Residency Program; Research Scientist, Department of Cancer Prevention and Population Sciences; Clinical Associate Professor, Epidemiology and Environmental Health. Major interests: cancer screening utilization and promotion, the effect of Chernobyl-related radiation exposure on the risk of leukemia in regions of Belarus, cost-effectiveness of various approaches to promoting the use of pharmacotherapy for smoking cessation in a Medicaid population.

**Patricia Marcus**, MBA, University at Buffalo. Adjunct Instructor, Epidemiology and Environmental Health.

**James Marshall**, PhD, University of California at Los Angeles. Senior Vice President, Cancer Prevention and Population Sciences, and Chair, Department of Cancer Prevention and Population Sciences, Roswell Park Cancer Institute; Research Professor, Epidemiology and Environmental Health. Major interests: chemoprevention strategies in human populations, diet and breast cancer, epidemiologic analysis of predictors of genetic mutation in adenomatous polyps, familial colon cancer registries, endometrial cancer, metabolic factors among multi-ethnic populations.

**Terry Mashtare, Jr.**, PhD, University at Buffalo. Research Assistant Professor, Biostatistics. Major interests: clinical trials and consulting, skewed data analysis, survival analysis, receiver operating characteristic curves analysis, and censored data analysis.

**Susan McCann**, PhD, RD, University at Buffalo. Associate Professor of Oncology, Department of Cancer Control and Prevention, Division of Cancer Prevention and Population Sciences, Roswell Park Cancer Institute; Research Professor, Epidemiology and Environmental Health. Major interests: nutritional epidemiology, molecular epidemiology, diet and cancers of the reproductive organs, dietary phytoestrogen intake and genetic susceptibility to breast cancer.

**Amy Millen**, PhD, University of Wisconsin-Madison. Associate Professor, Epidemiology and Environmental Health. Major interests: nutritional epidemiology, diet and age-related chronic disease (age-related eye disease, periodontal disease, and cancer), micronutrient exposure with emphasis on vitamin D.

**Kirsten Moysich**, PhD, University at Buffalo. Professor and Academic Program Chair, Department of Cancer Pathology and Prevention, Roswell Park Cancer Institute; Research Professor, Epidemiology and Environmental Health. Major interests: role of inflammation in ovarian cancer, radiation exposure and subsequent reproductive health indicators, environmental risk factors for breast cancer.

**Lina Mu**, MD, PhD, Shanxi Medical University; PhD, Fudan University. Associate Professor, Epidemiology and Environmental Health. Major interests: environmental epidemiology, air and water pollution, cancer molecular epidemiology, gene-environment interaction, cancer survival.

**Michael Noe**, MD, MPH, SUNY Upstate Medical Center; MPH, Tulane University. Associate Dean, Community Relations and Clinical Affairs, School of Public Health and Health Professions; Director, Preventive Medicine Residency Program; Clinical Professor, Epidemiology and Environmental Health. Major interests: graduate training of physicians in Preventive Medicine, medical management, geriatric medicine with an emphasis on long-term care.

**Heather Ochs-Balcom**, PhD, University at Buffalo. Assistant Professor, Epidemiology and Environmental Health. Major interests: genetic epidemiology, cancer health disparities, pulmonary function.

**James Olson**, PhD, Medical College of Wisconsin. UB Distinguished Professor, Pharmacology and Toxicology; and Epidemiology and Environmental Health. Major interests: assessing health risks and biomarkers of exposure, effect and susceptibility to organophosphate pesticides and persistent halogenated aromatic hydrocarbons.

**Pavani Ram**, MD, Mount Sinai School of Medicine. Associate Professor, Epidemiology and Environmental Health. Major interests: child survival, handwashing, global health, diarrheal diseases, acute respiratory infections, infectious disease epidemiology.

**Xuefeng Ren**, MD, PhD, MD. Baotou Medical College; PhD, University of Washington. Assistant Professor, Epidemiology and Environmental Health. Major interests: study of environmental mutagens and carcinogens, mechanism of carcinogenesis, genetic/epigenetic biomarkers of environment toxicants, tumor suppressor genes, exposure biology and exposome.

**Kenneth Rogers**, MBA, University at Buffalo. Clinical Instructor, Epidemiology and Environmental Health. Major interest: health care delivery services in the fields of strategic planning and marketing.

**Donald Rowe**, PhD, University at Buffalo. Director, Office of Public Health Practice, and Public Health Liaison, School of Public Health and Health Professions; Clinical Assistant Professor, Department of Community Health and Health Behavior. Major interest: public health collaborations and partnerships, public health emergency preparedness.

**Carole Rudra**, PhD, MPH, University of Washington, MPH, Emory University. Research Assistant Professor, Epidemiology and Environmental Health. Major interests: impact of physical activity on pregnancy complications, maternal wellness, geographic information systems for exposure assessment in epidemiologic studies of physical activity, the built environment, and environmental exposures.

**John Violanti**, PhD, University at Buffalo. Research Professor, Epidemiology and Environmental Health. Major interest: assessment of psychological and biological indicators of chronic police stress.

**Jean Wactawski-Wende**, PhD, University at Buffalo. Professor and Dean of the School of Public Health and Health Professions, Epidemiology and Environmental Health. University at Buffalo. Major interests: women's health, osteoporosis, cancer, hormone therapy, menopause, hormonal variation, periodontal disease, oxidative stress.

**Stephen Walter**, MBA, Canisius College. Adjunct Instructor, Epidemiology and Environmental Health.

**Youfa Wang**, MD, PhD, Beijing University, University of North Carolina. Professor, Epidemiology and Environmental Health. Major interests: nutritional epidemiology, child nutrition and growth, childhood obesity, non-communicable chronic diseases, health disparities, lifestyles, global health, analysis of national survey and longitudinal data, application of systems science methods in public health.

**Xiaozhong Wen**, MBBS, PhD, Sun Yat-sen University, PhD, Brown University. Assistant Professor, Department of Pediatrics, Jacobs School of Medicine and Biomedical Sciences, Major interests: developmental origins of obesity and cardio-metabolic diseases, including maternal diet, smoking, and other lifestyle during pregnancy, placenta, intrauterine growth, epigenetics, infancy growth, and clinical intervention for pediatric obesity.

**Camille Wicher**, PhD, Esq., RN, MSN. PhD and Esq. University at Buffalo, Roswell Park Cancer Institute, Major interests: regulatory and ethical practices and scientific integrity within all facets of the Institute, including business ethics, conflicts of interest, human and animal subject research, and research biosafety.

**Yow-Wu Bill Wu**, PhD, University at Buffalo. Associate Professor, School of Nursing. Major interests: Research methodology, hierarchical linear modeling.



**Jerome Yates**, MD, MPH, University of Illinois College of Medicine; MPH, Harvard School of Public Health. Clinical Professor, Epidemiology and Environmental Health; Adjunct Professor, Medicine and Oncology, University at Buffalo and Roswell Park Cancer Institute. Major interests: adult acute leukemia, infection control in compromised patients, cancer rehabilitation, palliative and hospice care, cancer in the elderly, outcome disparities among disadvantaged populations.

**Kristina Young**, MS, University at Buffalo. Clinical Assistant Professor, Epidemiology and Environmental Health. Major interests: transparency and quality of health services delivery, health care consumer advocacy, partnerships of public health and private sector delivery systems.

**Jiwei Zhao**, PhD, University of Wisconsin at Madison. Assistant Professor, Department of Biostatistics. Major interests: Statistical methodology including semiparametric modeling and methods; non-regular likelihood methods (including pseudo, penalized, conditional, empirical, etc.); missing data analysis (especially non-ignorable missing data) in longitudinal data and observational studies; case-control studies; high-dimensional data analysis and variable selection.

# SOURCES OF INFORMATION

Below are the websites for forms referred to in subsequent sections and checklists.

**GRADUATE SCHOOL WEB SITE:** [www.grad.buffalo.edu](http://www.grad.buffalo.edu)

Documents:

Graduate School Policies and Procedures Manual:  
<http://grad.buffalo.edu/Academics/Policies-Procedures.html>

Graduate Faculty List: [www.grad.buffalo.edu/academics/facultyroster/roster.cgi](http://www.grad.buffalo.edu/academics/facultyroster/roster.cgi)

Guidelines for Electronic Thesis/Dissertation Preparation and Submission:  
[www.grad.buffalo.edu/Academics/ETD.html](http://www.grad.buffalo.edu/Academics/ETD.html)

Forms: [www.grad.buffalo.edu/Academics/Forms-for-Students.html](http://www.grad.buffalo.edu/Academics/Forms-for-Students.html)

Application to Candidacy Form (ATC)  
Certification of Full-Time Status Form  
Change Expected Conferral Date/Amend ATC  
Extension of Time Limit for Degree Completion  
Leave of Absence  
Use of Prior Coursework  
Transfer Credits Petition

**DEPARTMENT WEB SITE:** <http://sphhp.buffalo.edu/epidemiology-and-environmental-health.html>

Forms:

Independent Study Form  
Directed Research Form  
Abstract Form for MPH or MS and PHD  
Thesis Committee Approval Form  
Dissertation Committee Approval Form  
Outside Reader Appointment Form (PhD only)  
Outside Reader Approval Form (PhD only)

MPH Program Field Training Web Site:  
<https://sphhp.buffalo.edu/epidemiology-and-environmental-health/education/epidemiology-mph/requirements-and-curriculum/field-training.html>

Online Field training forms: <http://mysphhp.buffalo.edu/mph/>

**STUDENT RESPONSE CENTER WEB SITE:** [www.registrar.buffalo.edu](http://www.registrar.buffalo.edu)

Academic Calendar: <http://registrar.buffalo.edu/calendars/academic/index.php>  
Class Schedule: <http://registrar.buffalo.edu/schedules/index.php>  
MYUB: <http://myub.buffalo.edu/> (requires login)