

Academic Policies

2007 -- 2008



Department
of
Epidemiology

School
of
Public Health

University
of
North Carolina
at
Chapel Hill

Advising

Honor Code

Degree Requirements

Calendar of Events

Learning Objectives

...and more



IMPORTANT DATES FOR THE 2007 – 2008 ACADEMIC YEAR

DATE	EVENT
Aug 21	First day of classes (Fall 2007)
Aug 27, 4:30 pm	Last day to register for September Offering of Cancer, CVD, Social, or Physical Activity/Obesity Substantive Doctoral Qualifying Exam
Aug 27	Last day to register or Add a course
Sep 3	Labor Day Holiday
Sep 4	Last day to drop a course for financial credit
Sep 14	Spring 2008 course listing available over the web
Sep 27, 7:45 am-2:00 pm	Doctoral Qualifying Exam – Cancer, CVD, Social and Physical Activity/Obesity Substantive Components
Oct 6	Registration begins for Spring 2008 term
Oct 12	University Day (classes cancelled from 10:00 am to 1:00 pm)
Oct 12	Last day to apply for December graduation
Oct 18	Fall break
Oct 19	Fall break
Nov 15	Pre-payment or Financial Aid proof period begins for Spring 2008 registration
Nov 20	Last day to drop a course
Nov 21	Final signed copies of masters papers due to Student Services Office by 4:00 pm for December graduation candidates
Nov 21	Thanksgiving (no classes)
Nov 22	Thanksgiving holiday
Nov 23	Thanksgiving holiday
Nov 26	Final signed copies of dissertations and reports of masters paper due to Graduate School by 4 pm for December graduation candidates
Dec 5	Last day of classes
Dec 6	Reading day
Dec 11	Tuition and fees due for Spring 2008 term
Dec 7, 4:30 pm	Last day to register for January QE Methods Component
Dec 7-8, 10-11	Exams
Dec 12	Reading day
Dec 13-14	Exams
Dec 16	December commencement
Jan 8, 8:45 am-3:00 pm	Doctoral Qualifying Examination – Methods Component
Jan 9	First day of classes (Spring 2008)
Jan 15	Last day to register or Add a course
Jan 21	Martin Luther King Holiday
Jan 23	Last day to drop a course for financial credit
Feb 8	Last day to apply for May graduation
Mar 10-14	Spring break
Mar 21	Spring holiday
Apr 7, 4:30 pm	Last day to register for Master's Comprehensive Exam
Apr 9, 4:30 pm	Last day to register for May Offering of Environmental/Occupational, Injury, Infectious Diseases, Reproductive, and Health Care Substantive Doctoral Qualifying Exam
Apr 10	Final signed copies of masters papers due to Student Services Office by 12:00 Noon for May graduation candidates
Apr 11	Last day to drop a course
Apr 11	Final signed copies of dissertations and reports of masters paper due by 4 pm for May graduation candidates
Apr 25	Last day of classes
Apr 26	Reading day
Apr 28-29 May 1-2	Exams
Apr 30	Reading day
May 5-6	Exams
May 7, 8:45 am -- 1:00 pm	Master's Comprehensive Exam
May 9	Doctoral Qualifying Exam - Environmental/Occupational, Injury, Infectious Diseases, Reproductive, and Health Care Substantive Components
May 10	Doctoral Hooding Ceremony
May 11	Commencement

SOME USEFUL PIECES OF INFORMATION

A/V Services

http://www.sph.unc.edu/iis/audio_visual_equipment_1100_4434.html

Business Cards

To order business cards, go online at http://www.printing.unc.edu/Printing_Services/ordering-1.html

Campus Services

Cashier: cashiers.unc.edu, Brenda Brock, 962-5856, Brenda_brock@unc.edu

University Registrar: regweb.unc.edu, 962-3954

International Student and Scholar Services: oiss.unc.edu/, 962-5661, oiss@unc.edu

Graduate School: gradschool.unc.edu

Enrolled Students:

A-G – Lou Anne Phelps, 962-6316 laphelps@email.unc.edu

H-Z – Nancy Wines, 962-6316, nancy_rose@unc.edu

Payroll Issues

EPID Fiscal Office – MC 2107

Room Scheduling

EPID Conference Room:

Email Chandra at ccaldwel@email.unc.edu

SPH Classrooms (whether for a course or a presentation):

http://www.sph.unc.edu/iis/room_reservations_660_3617.html

Student Health

Campus Health Services, 966-2281, campushealth@unc.edu

Supplemental Insurance, <http://campushealth.unc.edu/content/view/29/54/>;

<http://www.hillchesson.com/Site/University%20Plans.html>

Tech Support

<http://www.sph.unc.edu/iis/>



Use the EPID website (www.sph.unc.edu/epid) - learn to love it because there's a wealth of information there. Click on "Related Links" and start your quest!



"Student Services Office" means Nancy or Carmen's office.



Use the SPH Career Development Center (http://www.sph.unc.edu/student_affairs/career_services.html) for info on jobs, fellowships, internships, resume writing, etc.)

THE ADVICE COLUMN

Communication

Administrative:

Read the emails that are sent out by Nancy or Carmen! It's extremely frustrating for us when we send information out via the listserve only to have students asking us for the very same information a couple of days later. (And the faculty are just as guilty!). On your end it may "take just a minute" but on our end that's often multiplied by 10 or 20 or 30 students, which is extremely disruptive to our work. Sometimes the consequences are more serious, such as cancelled registrations because you didn't pay attention to our memos. We're here to help you, but you also need to help yourselves.

Professional:

Get to know your colleagues. Networking is a critical skill that serves many purposes: epidemiologic knowledge sharing, job connections, resource identification, etc. While your advisor plays an important role, you should also get to know other faculty (especially those within your research area!). It's okay to make an appointment to talk with faculty just to learn about their research. It's also important to get to know your peers. They often have very helpful insight into how to navigate the program. In addition, project staff members can be a valuable resource.

Document Sharing

Do NOT email multipage documents (course papers, proposal, etc.) to faculty without first asking them if they're willing to accept them electronically.

Graduating

The Problem:

Most students decide on a graduation date, determine the last day to complete requirements for that date, and then work backwards in scheduling their defense. The result is that those students find themselves in the position of always racing to meet an unrealistic last minute deadline. This creates a tremendous amount of stress for both students and committee members.

The Solution:

Give yourself some breathing room. If you want to graduate in May, you should be confident that you'll have a complete draft of your master's paper by March 1 or your dissertation by February 1. The target dates for August graduation would be June 1 (master's) and May 1 (doctoral). Target dates for December graduation would be October 1 (master's) and September 1. While these timelines may seem excessive to you, experience has shown that students are not good at judging the time needed to complete the master's paper and dissertation.

Relax. If you finish earlier than anticipated you can always use the time to get out some more publications and search for jobs!

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INTRODUCTION

Academic Policies provides comprehensive information on policies and requirements for Master's and Doctoral programs in the Department of Epidemiology. It is intended for the use of students and advisors, and is updated annually. Many forms are referenced throughout this document. All forms are available in EPID's Student Services Office (i.e., Nancy or Carmen's office!). Some are available on the web at:

http://www.sph.unc.edu/epid/department_of_epidemiology_forms_2381_2655.html

Every effort is made to ensure that the information presented herein is accurate and complete. However, students should be aware that errors and omissions do sometimes occur; for this reason, minor changes and/or clarifications may be required at a later date.

If at any time you have questions about these policies, please consult with the EPID's Student Services Office.

There are several other references with which you need to be familiar. They contain important information about UNC policies and procedures. These references include:

- **The Graduate School Handbook**
Graduate School policies for degree programs. Available online at <http://gradschool.unc.edu>. **You are responsible for adhering to these policies.** They are not necessarily re-stated in this document.
- **Directory of Classes**
Can be found online at <http://regweb.unc.edu/courses/> and scroll down to "Online Directory of Classes."
- **A Guide to the Preparation and Submission of Theses and Dissertations**
Available from the Graduate School, second floor Bynum Hall or at <http://gradschool.unc.edu>
- **Student Central**
Go to the UNC web site at <http://www.unc.edu/student/> and click on Student Central. From this site you can register, check grades and billing info, print transcripts, update your address, and more.
- **"Related Links"**
Go to the Department's web site at www.sph.unc.edu/epid and click on "Related Links" for additional resource tools.

Student Services Office

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DIMENSIONS IN THE TRAINING OF AN EPIDEMIOLOGIST

I. PERSPECTIVE

The development of an epidemiological perspective is essential to the conceptualization of problems and the application of knowledge. Graduates of the Department of Epidemiology are expected to have an appreciation of the origins and goals of epidemiology as the basic science of public health, and of its methods, capabilities, limitations, and contrasts with related fields. Students should understand basic etiologic and prevention principles which underlie problems in public health. Subjects that help build such an appreciation include the philosophy of science, the history of epidemiology, studies of the role of epidemiology in prevention of disease, evaluation of programs, the ethical aspects of defining research questions and methods, as well as basic biological, social, and physical sciences.

II. KNOWLEDGE

Graduates of the Department of Epidemiology are expected to have an understanding of the epidemiology of the leading causes of death and disability. In addition, a general background in health-related sciences and multidisciplinary understanding of specific areas of research are important.

III. SKILLS

Graduates of the Department of Epidemiology are expected to acquire diverse skills. Although the depth and breadth of specific skills acquired by different students will vary, the following are all considered to be fundamental:

- A. **MEASUREMENT:** Measurement of health behaviors, conditions and exposures in populations.
- B. **ANALYSIS:** Sources of error, statistical inference, data analysis and interpretation.
- C. **WEIGHING EPIDEMIOLOGIC EVIDENCE:** Critical reading and synthesizing of information. This should include an understanding of mechanisms and techniques in basic biologic and social sciences.
- D. **PROPOSAL DEVELOPMENT:** Specification of research hypotheses, study populations, measurement tools, analysis strategies; ethical issues in research involving human subjects.
- E. **STUDY DESIGN AND EXECUTION:** Protocol development, subject recruitment, instrumentation, data collection, quality assessment and control.
- F. **COMMUNICATION:** Reporting and communicating study results, including presentation of findings in professional and lay public settings.

IV. PRACTICE OF EPIDEMIOLOGY

Development of skills for teaching, consultation, writing and review of proposals and manuscripts, participation in professional meetings, and working with public health agencies and community groups. Skills and experience should also be developed in professional ethics, working with multidisciplinary research teams, continuing professional development, and communication with the lay public.

COURSES OFFERED IN THE DEPARTMENT OF EPIDEMIOLOGY

I. METHODS COURSES

- EPID 600: Principles of Epidemiology
- EPID 700: SAS and Data Management
- EPID 705: Introduction to Logic and Probability Logic in Epidemiology
- EPID 710: Fundamentals of Epidemiology
- EPID 711: Clinical Measurement and Evaluation
- EPID 715: Theory and Quantitative Methods in Epidemiology
- EPID 718: Epidemiologic Analysis of Binary Data
- EPID 722: Epidemiology Analysis of Time-to-Event Data
- EPID 725: Research Planning Workshop
- EPID 726: Epidemiologic Research Methods
- EPID 730: Readings in Methods for Epidemiology
- EPID 733: Clinical Trials in Epidemiology
- EPID 801: Data Analysis in Oral Epidemiology
- EPID 806: Clinical Research Skills (K30 Program, Spring)
(<http://www.med.unc.edu/orfd/researchdev/crc/applying.htm>)

II. SUBSTANTIVE COURSES

- EPID 620I: Aging and Health
- EPID 735: Cardiovascular Disease Epidemiology
- EPID 737: Advanced Cardiovascular Epidemiology
- EPID 743: Genetic Epidemiology: Methods and Applications
- EPID 745: Molecular Techniques for Public Health Research
- EPID 750: Fundamentals for Public Health Surveillance
- EPID 751: Emerging and Re-Emerging Infectious Diseases
- EPID 752: Introduction to Methods in Infectious Disease Epidemiology
- EPID 753: Prevention and Control of Infectious Diseases at the Level of the Community
- EPID 754: Mathematical Modeling of Infectious Diseases
- EPID 756: Control of Infectious Diseases in Developing Countries
- EPID 757: Epidemiology of HIV/AIDS in Developing Countries
- EPID 765: Methods and Issues in Pharmacoepidemiology
- EPID 770: Cancer Epidemiology and Pathogenesis
- EPID 771: Cancer Epidemiology Methods
- EPID 772: Cancer Prevention and Control (crosslisted as HPAA 765, HBHE 765; HPAA administratively responsible)
- EPID 775: Advanced Cancer Epidemiology: Classic and Contemporary Controversies in Cancer Causation
- EPID 780: Occupational Epidemiology
- EPID 783: Injury as a Public Health Problem (crosslisted as HBHE 725, HBHE administratively responsible)
- EPID 785: Environmental Epidemiology
- EPID 786: Community-Driven Research for Environmental Justice
- EPID 800: Epidemiology of Medical Care
- EPID 805: Clinical Epidemiology and Clinical Research Methods (K30 Program, Fall)
(<http://www.med.unc.edu/orfd/researchdev/crc/applying.htm>)
- EPID 810: Physical Activity Epidemiology and Public Health (crosslisted as NUTR 810, EPID administratively responsible)
- EPID 813: Nutritional Epidemiology (crosslisted as NUTR 813, NUTR administratively responsible)

- EPID 814: Obesity Epidemiology (crosslisted as NUTR 814, NUTR administratively responsible)
- EPID 815: Diet and Cancer (crosslisted as NUTR 815, NUTR administratively responsible)
- EPID 818: Analytical Methods in Nutritional Epidemiology (crosslisted as NUTR 818, NUTR administratively responsible)
- EPID 825: Social Determinants of Health: Theory, Method & Intervention (crosslisted as HBHE 802, HBHE administratively responsible)
- EPID 826: Social Epidemiology: Concepts and Measures
- EPID 827: Social Epidemiology: Analysis and Interpretation
- EPID 851: Perinatal Epidemiology (crosslisted as MHCH 851, EPID administratively responsible)
- EPID 853: Advanced Topics in Perinatal & Pediatric Epidemiology (crosslisted as MHCH 853, EPID administratively responsible)

III. CREDIT SEMINARS

- EPID 764: Hospital Epidemiology
- EPID 890: Seminar for MSPH Students
- EPID 891: Doctoral Seminar
- EPID 892: Interdisciplinary Seminar in Health Disparities (crosslisted as MHCH 892, EPID administratively responsible)
- EPID 893: Pharmacoepidemiology Seminar
- EPID 894: Infectious Disease Seminar
- EPID 895: Seminar in Oral Epidemiology
- EPID 896: Seminar in Clinical Research
- EPID 897: Advanced Seminar in Cardiovascular Research
- EPID 898: Global Health Ethics Seminar

IV. TUTORIALS AND RESEARCH SECTIONS

- EPID 690: Section 001 -- Problems in Epidemiology
- EPID 883: Teaching Internship in Epidemiology
- EPID 900: Study Implementation in Epidemiology (Master's Practicum)
- EPID 905: Epidemiology Laboratory Practice
- EPID 910: Research in Epidemiology
- EPID 992: Master's Paper
- EPID 994: Doctoral Dissertation

* NOTE: New courses in all categories are offered for the first time as sections of EPID 690 (Problems in Epidemiology)

DESCRIPTIONS OF EXPECTATIONS FOR INDEPENDENT STUDY, INDEPENDENT RESEARCH, AND LAB PRACTICE REGISTRATION:

Independent study, independent research, and field training are options available to the advisor and the trainee to introduce individualized and flexible learning opportunities into a student's training path. The distinctive features that define each of these are listed below:

Independent Study (EPID 690-section 001) is a course organized between faculty and one student (or fewer than five students) with defined learning objectives, an evaluation, and credit hours to meet a student's training objectives outside/beyond the established courses and seminars. Independent study can include review of the

substantive and/or methodologic knowledge base in a particular area, and/or their application. Independent study is not intended to support research hours.

Independent Research (EPID 910) provides a mechanism for training opportunities based on active participation in research with faculty. It is based on defined learning objectives for this activity, their evaluation, and a pre-established number of credit hours. The student's time is allocated primarily to an active role in research activities as part of a research team, as opposed to a review of the scientific background and/or knowledge base pertinent to the research.

Independent research is a training activity for academic credit. Remuneration as a research assistant for the student's participation in a research project related to this learning activity is an option, to the degree that the objectives and responsibilities for the independent research and the research assistant activity are specified and do not overlap. Both the learning activity and its objectives, as well as the funding implications, must be discussed explicitly at the outset of this activity and established in writing.

Study Implementation in Epidemiology (EPID 900) provides credit for the required Master's practicum experience. The Master's practicum provides students with the opportunity to apply their academic training to experientially address master's competencies in the context of public health research. Students must register under the section that matches their practicum advisor. If that person does not have a section, the student registers for section 001 through the Student Services Office.

Epidemiology Lab Practice (EPID 905) is any learning activity conducted off-campus, designed to support the student's training goals. Such activities are either formal training activities listed on the curriculum, or designed specifically for the student with approval by the advisor, specifying learning objectives, number of credit hours, an evaluation, and the student's responsibilities.

A student's participation in (either) independent study, independent research, or lab practice requires approval by the supervising faculty and registration with the Student Services Office.

INFORMATION RELEVANT TO ALL EPIDEMIOLOGY STUDENTS

ACADEMIC CALENDARS



Students will frequently need to consult the Academic Calendar to be aware of all pertinent deadlines, holidays, etc. University calendars (including registration deadlines, drop dates, final exam schedules) are available online at <http://regweb.oit.unc.edu/calendars>.

DEPARTMENTAL COMMUNICATION

Student E-Mail Accounts

Much of the communication between students and the Student Services Office, faculty and other offices/individuals on campus will be through e-mail. Each student is provided with a departmental e-mail account upon enrollment. These e-mail addresses are made available to UNC faculty, staff and other students. Frequently students have other e-mail accounts on campus and elsewhere; however, you should be aware that the account issued here is the one which will be used for communications from faculty, staff and other students.

Students must maintain a departmental alias address of the format "epi dot first four letters of last name immediately followed by first four letters of first name followed by @unc.edu." [e.g. John Smith, epi.smitjohn@unc.edu; Ann Jones, epi.joneann@unc.edu; Hui Li, epi.lihui@unc.edu]

Communications to the entire list of students will take place via an e-mail listserv. The address for sending messages to this list is: epidstudents@unc.edu. All student accounts have automatically been subscribed to this listserv.

If there is another e-mail account that should be designated as a preferred address for mass mailings, it is possible to unsubscribe from the list using the currently subscribed account and then re-subscribe from the preferred account. (See Appendix I.) Alternatively, you may choose to forward your SPH account to the other account.

Since e-mail is the primary mode of communicating information to students, it is imperative that your e-mail be checked regularly. Students are held responsible for information disseminated via email.

Listservs (electronic mailing lists)

Several other listservs are available for student use. Within the EPID department, job announcements for research and teaching assistantships are sent to the "epidjobs" listserv. Information on seminars, doctoral defenses, master's presentations, etc. is disseminated via a listserv called "epidsems." "Epidsocial" is used for non-academic announcements. All students are automatically subscribed to [epidstudents](mailto:epidstudents@unc.edu) and [epidsems](mailto:epidsems@unc.edu). Details on these listservs are presented in Appendix I.

THE ADVISING PROCESS

Advisor Assignments

When a student is offered admission to the EPID program, an advisor assignment is made based on factors such as mutual interests and faculty advising load. Within the student and faculty population, there is great diversity in work styles. While in most instances the original assignment will prove to be a satisfactory and fulfilling

relationship, there are many reasons why these first matches may not always be the best pairing to meet the needs of the student. For this reason, there may be times when the student and/or the advisor feel that the student's needs can be better served by another advisor. Change is encouraged to facilitate the best possible advising experience.

Changing Advisors

Changing advisors is simple. Once the student identifies a new faculty member who is willing to serve as advisor (often after discussing options with several), the student asks the faculty member to sign an Advisor Assignment/Change Form indicating that s/he has agreed to advise the student. A student who is considering a change in advisors is encouraged to discuss the situation with the current advisor. If for any reason the student is not comfortable doing this, s/he should consult someone from the Student Services Office about how to proceed, depending on the specific circumstances. When a change in advisors is made, the student should notify the now-prior advisor as a matter of courtesy. However, if this proves to be a problem, the Student Services Office can help with notification.

Communication

The advisor/advisee relationship benefits from good communication. Establishing expectations of both the faculty member and the student at the outset of the advisor/advisee relationship is a major component of good communication. Listed below are some suggestions for topics for discussion between advisor and advisee, beginning at the first meeting:

- preferred method of communication (telephone, email, walk-in, sign-up at door, schedule appointment with secretary)
- frequency of meetings
- responsibility for initiation of meetings
- how the advisor will communicate which of his/her suggestions are recommendations and which are requirements
- how much course planning should be done with the advisor (i.e., is it necessary to meet with the advisor prior to registration for courses)
- who will be responsible for ensuring that the student has met all degree requirements
- to what extent the advisor will assist in identifying funding opportunities
- to what extent the advisor will assist in identifying master's paper and/or dissertation topics
- what the advisee's expectations are in terms of faculty involvement in identifying topics and funding opportunities
- what the advisor's expectations are in terms of professional development opportunities (i.e., manuscript review, proposal writing, data analysis, literature reviews, presentations at meetings, etc.)
- how often the student and advisor should meet to assess the student's progress, and in what manner that assessment will be made
- how often the student and advisor should meet to assess the appropriateness of the advisor/advisee match, and in what manner that assessment should be made

Process Evaluation

It is recommended that the advisor and advisee regularly assess the advising relationship to evaluate the appropriateness of the match and to identify areas where improvement can be achieved. Students and advisors are encouraged to discuss openly the concerns of either party and to try to negotiate solutions to any problems.

Conflict Resolution

Most differences can be resolved through open communication and should be addressed early on. In the event that the student or faculty member feels that intervention is needed by a third party, s/he is encouraged to first seek the assistance of the Student Services Office in dealing with the problem issue(s). If a mutually satisfactory plan for resolving differences cannot be developed, the student or faculty member may opt to consult the departmental ombudsman for assistance (see description below of "Role of the Departmental Ombudsperson"). Alternatively, either party may choose to seek the guidance of the Chair of the Department. Students as well as faculty should feel free to seek support and assistance, whenever necessary, without fear of negative repercussions.

Role of the Departmental Ombudsperson

A faculty member whose primary appointment is in the Department of Epidemiology is designated to serve in the capacity of an ombudsman for issues involving student-faculty relationships. The role of this ombudsman is to be of assistance to students and faculty of the Department who perceive themselves to be in conflict with one another, and require advice and/or mediation in the resolution of such a conflict.

The ombudsman is available to any student or faculty member, both for consultation and to play an active role in the resolution of a conflict that places either party in a vulnerable position and/or requires mediation. Conflicts arising out of inter-personal or academic matters can be brought to the attention of the ombudsman, if either party feels that the channels for advising and conflict resolution have been exhausted (e.g., they cannot be resolved by consultation with an advisor, by a change in advisor, or in consultation with the Office of Student Services). The role of the ombudsman does not extend to issues related to exams, conflicting time-lines, or any other routine academic matters.

Interactions with the ombudsman constitute confidential information. Initiatives by the ombudsman in response to a problem presented to him/her by a student or faculty member are taken only after consultation with the parties involved.

THE HONOR CODE (honor.unc.edu)

The Instrument of Student Judicial Governance (instrument.unc.edu) is the definitive document on student conduct and the judicial system. In an effort to ensure academic integrity, this document stipulates that students must sign a pledge on all written work. **The pledge reads “On my honor, I have neither given nor received unauthorized aid on this assignment.”** Instructors may allow the option of simply writing on your work “Pledge” and signing your name. **When in doubt about instructor expectations regarding team work on projects, crediting the work of others, using previously submitted work, etc., ask the instructor to clarify.** Faculty members are bound by University regulations to report to the Student Attorney General any suspicion of a violation of the Honor Code. Private action by faculty regarding suspected or admitted Honor Code violations is prohibited by faculty policy. If you have any concerns or questions regarding the Honor Code you should contact the Office of the Associate Dean of Students and Judicial Programs (966-4042; deanofstudents.unc.edu) or the Office of the Student Attorney General (966-4084).

Many violations of the Honor Code occur due to an improper or insufficient understanding of procedures and expectations rather than an attempt to deceive. When in doubt, it is imperative that students consult with instructors or other appropriate resources. **Even though ignorance is often the cause, it does not excuse the act of Honor Code infringement.**

Areas that are frequently troubling include the following:

- submission of work previously submitted and graded for another course (It is the nature of some courses to build upon work previously submitted. Always check with the instructor before doing so.)
- failure to properly cite own work from previously developed materials. (You must cite yourself if re-using your own writing for another purpose.)
- cultural differences in understanding the Honor Code (Some cultures view the word-for-word copying of another's work to be not only acceptable, but desirable, even without appropriate source identification. International students in particular may need to seek guidance from campus resources.)
- lack of a clear understanding of plagiarism (What constitutes plagiarism can vary from discipline to discipline. Refer to the Graduate School policy on academic integrity and ethics, found in the Graduate School Handbook at gradschool.unc.edu/students_current.html)

EXEMPTION FROM REQUIRED COURSES

Exemption from any course requirement is on the basis of equivalent work. A student seeking exemption from, or substitution for, a School of Public Health core requirement must submit for approval the School of Public Health exemption form to the advisor and core course instructor. To be exempted from a departmental requirement, the student submits a departmental exemption request form to the Student Services Office. The petition must first be signed by the student's advisor, and should describe clearly the equivalent experience.

Exemptions are not granted for substantive courses. We expect our students to meet the substantive epidemiology course requirements by choosing topical areas, and course levels within a program area, that complement the knowledge base that they bring to the program.

POLICY ON "L" GRADES

A grade of P is the lowest acceptable grade in core methods courses (EPID 705, EPID 710, EPID 715, EPID 718, and EPID 722). A grade of L in one of these courses requires re-taking the course if the student is to continue in the program. Students are expected to attain a grade of P in EPID 725 also, but a grade of L in this course does not require re-taking it. Instead, consultation with the advisor and the course instructor is required prior to taking EPID 726 (see Implementation, below).

Diagnostics

It is each student's responsibility to assess his/her performance in courses and the need for remedial action. For this, students are encouraged to seek help from their advisor, course instructors or others, as needed. In addition, a grade of L in an Epidemiology core methods course requires that a meeting among the student, the advisor, the course instructor, and the Student Services Office take place within two weeks. The purpose of the meeting is to ascertain the factors associated with the poor performance and to implement the steps described below. The Student Services Office will notify the student's advisor of the L grade. The advisor is then responsible for initiating this meeting at the earliest convenience of all involved.

Implementation

Students who receive a grade of L in a core methods course must re-take the course and receive a minimum of a P, unless exempted as described below. The student is expected to retake the course – or to be granted an exemption by the GSC – within one year of taking the core methods course that resulted in an L grade. If this time line is not met the student must ask his/her advisor to present an alternative time line to the GSC. The time line for a student's Intradepartmental Review is not affected by an L grade.

Conditional advancement to a higher-level course for a student who receives a grade of L in a core methods course

Students who receive a grade of L in a core methods course may advance to the pertinent higher-level methods course in epidemiology (prior to re-taking the course in which they received an L) only if approved by the instructor of the higher-level course and endorsed by the student's advisor.

Exemption from the requirement to re-take a core methods course

A high performance in the higher-level course (above the 85th percentile) allows the student to submit a request to the GSC to be exempted from having to re-take the lower level course graded as 'low pass' (L).

AUDIT POLICY

Students may audit courses at the discretion of the professor. As a general rule, faculty are receptive to auditors provided space is available in the classroom. Recitation (lab) sections are typically not open to auditors. As per the University Registrar's policies, "Students auditing a course do not write examinations or papers and do not participate in class discussions unless otherwise directed by the course instructor. They do not appear on the instructor's class roll and may not request grades."

STATISTICAL COMPUTING AND DATA MANAGEMENT

Competence in statistical computing and data management is a requirement of the program. Statistical computing using SAS is a component of several of the methods courses, and is required for one's own research, as well as for many research assistantships. (Stata is an acceptable substitute for SAS.) Various training resources are available for students without prior experience. Some of these are:

- EPID 700: SAS and Data Management (3 credits)
- BIOS 511: Introduction to Statistical Computing and Data Management (3 credits)
- Non-credit short courses offered by the UNC Institute for Research in Social Sciences or Academic Technology & Networks (ATN)

An exemption exam is offered for those students not enrolling in EPID 700 or BIOS 511.

Adequacy in statistical computing is assessed as part of the intradepartmental review discussion for doctoral students.

EMPLOYMENT RESOURCES

There are two primary sources of information about student job opportunities – the epidjobs listserv, as described in the Listserv section above, and the School of Public Health Career Development Center (SPHCDC) (http://www.sph.unc.edu/student_affairs/career_services.html). The SPHCDC also provides assistance with resume preparation, interview techniques, internships, and postgraduate job searches. In addition, faculty are instrumental in assisting their students with networking within their research area.

INFORMATION SPECIFIC TO MASTER'S DEGREE STUDENTS

COMPETENCIES FOR THE MPH AND MSPH

MPH

The MPH program enrolls students who have a terminal professional degree (such as MD, DDS, DVM) or an academic degree (PhD). The program is designed to add to their existing expertise a knowledge of the concepts and skills of epidemiology, to strengthen their research capabilities, to develop their understanding of public health concepts and the population perspective, and to enable them to be more sophisticated readers of clinical and epidemiological studies. The master's competencies in the Department of Epidemiology fully meet with core competencies set out by the **ASPH Education Committee**.

Upon satisfactory completion of the MPH degree program the student will be able to:

1. Apply the core competencies in public health as set forth in the learning objectives for the School of Public Health core curriculum;
2. Discuss the major obstacles and challenges to public health in the nation and the world, contrast the clinical and population perspectives on improving public health, and articulate the role of epidemiology in preserving and improving public health;
3. Explain fundamental epidemiological concepts, such as natural history, prevalence, incidence, relative risk, attributable risk, direct standardization, standardized mortality ratio, cohort, case-control, precision, bias, confounding, and effect modification and recognize these concepts even when they are referred to with different terminology;
4. Discuss basic issues in the definition, classification, and detection of pathologic states as these issues arise in the study of diseases in populations and the problems such issues present for disease surveillance and comparative studies; natural history and spectrum of disease, when is a condition the disease, operational classification, changing definition with greater understanding, limitations on accuracy of cause of death designation, among others;
5. Define, compute, and interpret epidemiological measures of prevalence, incidence, association, and impact;
6. Explain and apply methods of standardization or adjustment for factors such as age or sex, and discuss the advantages and limitations of different methods of standardization;
7. Explain major epidemiological descriptive and analytic study designs, the epidemiological measures that can be estimated from each, and their relative strengths and limitations;
8. Explain major categories of bias, recognize the potential for their occurrence in specific study situations, and propose measures to assess and/or reduce their influence on the measures of major interest;
9. Present the concepts, purpose of and problems in the evaluation of diagnostic tests, and of interpretation in surveillance for acute and chronic diseases and other factors important for public health;
10. Explain the concept of the multifactorial nature of disease and how the observed association between one factor and disease can be affected by the distribution of other independent and non-independent risk indicators, and be able to control for these influences in situations involving multiple risk indicators;

11. Prepare computer files of raw epidemiological data, and analyze, present, summarize, and interpret epidemiological data and parameters presented in tables, figures, and graphs. Analyses may employ statistical tests and confidence intervals based on means, rates, proportions, and ratios for contingency table analyses involving the control of one or two categorical variables or for modeling analyses employing linear or linear logistic regression;
12. Weigh the evidence in favor of and against the likelihood that an association observed in epidemiological studies is causal;
13. Apply the above knowledge in critically reading epidemiological and clinical studies;
14. Write a thesis-equivalent that demonstrates proficiency in critically reading the epidemiological literature, and in analyzing, reporting, and interpreting epidemiological data.

MSPH

The MSPH degree is required for students admitted to the PhD program without a prior master's degree in a relevant area. The program provides them with knowledge of the concepts and skills of epidemiology to serve as a foundation for building competencies to become an independent public health investigator. Like the MPH program, the MSPH program develops the students' understanding of public health concepts and the population perspective, and enables them to become sophisticated readers of clinical and epidemiological studies. In contrast to the MPH program, the MSPH program assumes that graduates' primary area of expertise will be in the field of epidemiology, rather than in some other profession. The MSPH degree in the field of epidemiology is not considered a terminal degree and is not intended to provide sufficient preparation for assuming leadership in the practice of epidemiology.

Because the content in regard to concepts and skills of epidemiology and public health are the same for the two masters' degrees, competencies for the MSPH and MPH degrees are very similar (and are not repeated here). The only exceptions are criteria #13 and #14 where an allowance is made for the fact that students in the MSPH degree program don't possess a specific area of professional expertise as in the case of students in the MPH degree program.

SUMMARY OF DEGREE REQUIREMENTS FOR THE MPH AND MSPH

See Appendix XIV for a checklist of master's milestones.

School of Public Health Core Curriculum

The UNC School of Public Health has established a set of core competency requirements for students enrolling in MPH, MSPH, MHA, and DrPH degree programs. The curriculum requires that all professional public health degree recipients acquire knowledge in five core areas: environmental health, social and behavioral science, biostatistics, epidemiology, and health policy and administration.

Purpose

- To insure that all students are knowledgeable in the five basic public health content areas (listed above);
- To help students integrate and apply what they learn to solving important public health problems in an interdisciplinary manner; and

- To help students understand the larger public health perspective, including the history, mission, objectives, and ethics of public health, and the relationship of the perspective to the various scientific and professional disciplines within public health.

The Core Curriculum

The core will consist of courses in each of the following five areas:

1. Epidemiology
2. Biostatistics
3. Health Policy and Administration
4. Environmental Health Sciences
5. Social and behavioral sciences

To meet the core competency requirements, students will take approved courses in each of the five areas. Courses that meet the requirement will be approved by both the relevant SPH department and the School's Academic Programs Committee. Each department will maintain a list of approved courses in each of the five areas.

CORE AREA	BASIC COURSE REQUIREMENT(S)	APPROVED ALTERNATIVE(S)	
Biostatistics	BIOS 600	BIOS	Any BIOS course higher than 500
		HPAA	470 (HPAA majors only)
		SOWO	510 <u>and</u> 911 (sequence restricted to students enrolled in joint MPH/MSW program)
Epidemiology	EPID 600 or 710	EPID	711 (for clinicians)
		PUBH	760 (for clinicians only)
Environmental Health	ENVR 600	ENVR	412, 421, 422, 430, 432, 685
Health Policy & Administration	HPAA 600	HPAA	660, 710, 564 (564 is for HPAA majors)
		MHCH	701&702, 730
		NUTR	720, 725 (for NUTR majors)
		PUBH	600 (PHLP majors only)
Social and Behavioral Science	HBHE 600	MHCH	859/860 (for MHCH DrPH students) SOWO 500 & 800, 801 or 804 (MSPH/MSW only) 701&702 and one of 714 or 740 (005) (MHCH only)
		NUTR	715
		PUBH	750 (for clinicians)

Departmental Minimum Course Requirements for both Master's Degrees:

- EPID 705: Introduction to Logic and Probability Logic in Epidemiology
- EPID 710: Fundamentals of Epidemiology [EPID 711 may be substituted by clinicians]
- BIOS 600: Principles of Statistical Inference **Or**
BIOS 550: Elements of Probability and Statistical Inference I
[BIOS 541 may be substituted by those in the Clinical Scholars Core curriculum]
- BIOS 545: Principles of Experimental Analysis **Or**
BIOS 551: Elements of Probability and Statistical Inference II
[BIOS 542 may be substituted by those in the Clinical Scholars Core curriculum]
- EPID 715: Theory and Quantitative Methods in Epidemiology
- EPID 718: Epidemiologic Analysis of Binary Data
- One epidemiology course (minimum) in a substantive research area*
- One of the following:
 - ◊ EPID 806: Clinical Research Skills (for those enrolled in the Clinical Scholars Curriculum)
 - ◊ EPID 733: Clinical Trials in Epidemiology
 - ◊ A second substantive EPID course
- Competency in statistical computing and data management; may be satisfied by:
 - ◊ EPID 700: SAS and Data Management
 - ◊ BIOS 511: Introduction to Statistical Computing and Data Management, or
 - ◊ BIOS 541/542
 - ◊ a comparable SAS or Stata course on this campus (i.e., through IRSS) or elsewhere, or
 - ◊ prior experience using SAS or Stata (exemption exam required)
- EPID 900: Study Implementation in Epidemiology (supervised practicum: 4 credit hour minimum)
- EPID 992: Master's Paper (3 credit hour minimum)

Other Program Requirements

- Completion of a minimum of 42 credit hours
- Comprehensive written examination (offered every May)
- Oral presentation of master's research
- Completion of an acceptable Master's Paper

A sample schedule for the two-year masters and the 18-month MPH program can be found in Appendix II.

*The following courses serve to satisfy the requirements for a course in a substantive research area:

- EPID 735: Cardiovascular Disease Epidemiology
- EPID 737: Advanced Cardiovascular Epidemiology
- EPID 743: Genetic Epidemiology: Methods and Applications
- EPID 745: Molecular Techniques for Public Health Research
- EPID 750: Fundamentals of Public Health Surveillance
- EPID 751: Emerging and Re-Emerging Infectious Diseases
- EPID 752: Introduction to Methods in Infectious Disease Epidemiology
- EPID 753: Prevention and Control of Infectious Diseases at the Level of the Community
- EPID 754: Mathematical Modeling of Infectious Diseases
- EPID 756: Control of Infectious Diseases in Developing Countries
- EPID 757: Epidemiology of HIV/AIDS in Developing Countries

- EPID 765: Methods and Issues in Pharmacoepidemiology
- EPID 770: Cancer Epidemiology and Pathogenesis
- EPID 771: Cancer Epidemiology Methods
- EPID 772: Cancer Prevention and Control (crosslisted as HPAA 765, HBHE 765; HPAA administratively responsible)
- EPID 775: Advanced Cancer Epidemiology: Classic and Contemporary Controversies in Cancer Causation
- EPID 780: Occupational Epidemiology
- EPID 783: Injury as a Public Health Problem (crosslisted as HBHE 725, HBHE administratively responsible)
- EPID 785: Environmental Epidemiology
- EPID 786: Community-Driven Research for Environmental Justice
- EPID 800: Epidemiology of Medical Care
- EPID 805: Clinical Epidemiology and Clinical Research Methods (K30 Program, Fall) (<http://www.med.unc.edu/orfd/researchdev/crc/applying.htm>)
- EPID 810: Physical Activity Epidemiology and Public Health (crosslisted as NUTR 810, EPID administratively responsible)
- EPID 813: Nutritional Epidemiology (crosslisted as NUTR 813, NUTR administratively responsible)
- EPID 814: Obesity Epidemiology (crosslisted as NUTR 814, NUTR administratively responsible)
- EPID 815: Diet and Cancer (crosslisted as NUTR 815, NUTR administratively responsible)
- EPID 818: Analytical Methods in Nutritional Epidemiology (crosslisted as NUTR 818, NUTR administratively responsible)
- EPID 825: Social Determinants of Health: Theory, Method & Intervention (crosslisted as HBHE 802, HBHE administratively responsible)
- EPID 826: Social Epidemiology: Concepts and Measures
- EPID 827: Social Epidemiology: Analysis and Interpretation
- EPID 851: Perinatal Epidemiology (crosslisted as MHCH 851, EPID administratively responsible)
- EPID 853: Advanced Topics in Perinatal & Pediatric Epidemiology (crosslisted as MHCH 853, EPID administratively responsible)

CREDIT TRANSFER

Upon approval by the Graduate School, up to 8 of the 42 minimum required hours (20%) may be transferred from another accredited institution, or from this institution for courses taken before admission to the Graduate School, or from a different master's program at this institution. [Exception: Up to 12 credit hours of SPH core certificate courses may transfer in, with the exception of EPID 600.] Transferred credit will be accepted by the Graduate School only upon recommendation by the student's major curriculum, department or school. Transfer of credit does not reduce the minimum residence requirements for a master's degree. See Carmen or Nancy for more information.

“RESIDENCY” REQUIREMENTS [not the same as for tuition purposes]

Master's candidates are required to complete a minimum residence credit of two semesters, either by full-time registration, or by part-time registration over a large number of semesters. The residence credit hour requirement requires UNC-Chapel Hill registration (i.e., transfer credit and credit from certificate programs are excluded).

REGISTRATION REQUIREMENTS

When all residence credit and course requirements have been completed, students using University resources to conduct their master's research and/or who need to maintain full-time status must register for three credit hours of EPID 992 (Fall/Spring). Students not using University resources may either apply for a leave of absence (which "stops the clock" for time to degree) or simply not register (both require readmission to the Graduate School). These forms can be found at <http://gradschool.unc.edu/forms.html>. Once completed, they should be turned in to the EPID's Student Services Office for submission. **Students must be registered for at least 3 hours in order to receive a stipend, and/or qualify for University Graduate Student Health Insurance.** This constitutes full-time enrollment (with or without additional courses). Full-time student status must be maintained for loan deferment or student visa status. Refer to the Graduate School Handbook for additional details.

LEAVES OF ABSENCE AND EXTENSIONS

Students may request a leave of absence if they will not be making progress towards their degree for a period of time. A leave of absence "stops the clock" so that the time does not count against your time to degree. When extenuating circumstances warrant, The Graduate School may grant an extension of the degree time limit. Either request requires departmental and Graduate School approval. See Graduate School handbook for additional details or consult with Student Services Office.

MASTERS PRACTICUM REQUIREMENT

The Epidemiology practicum is a planned and supervised component of the curriculum that provides learning opportunities normally not available in the classroom. It is designed to be an intensive, mentored, skill-building experience. The Master's practicum provides students with the opportunity to apply their academic training to experientially address Master's Competencies in the context of public health research.

The planning, implementation and evaluation of the practicum experience is done collaboratively between the student, the advisor and/or a practicum preceptor. Students must register for Epid 900 (Study Implementation in Epidemiology). The process is administered by the Office of Student Services and facilitated by the Faculty Practicum Coordinator, Lorraine Alexander, and adheres to a time line that identifies milestones for an orderly planning, implementation and evaluation. Responsibility for the academic oversight of this component of the curriculum rests with the Graduate Studies Committee.

Overview of the Master's Practicum in Epidemiology, by Degree Program

Program	Practicum Activity	Practicum Registration
MPH	Conduct practicum or field training (40 hours)	EPID 900 registrations (4 credit hours, any semester)
MSPH	Conduct practicum or field training (40 hours)	EPID 900 registrations (4 credit hours, any semester)

Purpose of the Practicum

The Master's practicum is a planned, supervised and evaluated practice experience during which students address basic public health concepts and competencies relevant to epidemiology. The Master's level competencies specific to Epidemiology and to its cross-cutting public health competencies are listed below. The

purpose of the practicum is to provide opportunities for the student to execute as many of these competencies as is feasible. The planning of a practicum, its implementation and evaluation are guided by a review of these competencies that MPH and MSPH students should possess upon graduation. A student's previous/usual professional activities do not suffice to fulfill the practicum requirement.

Masters Practicum Competencies

I. Discipline-specific Competencies

Upon graduation a student with an MPH or MSPH should possess the competencies listed below.

1. Describe a specific public health problem in terms of its magnitude, person, time and context
2. Formulate an informative study question and the associated testable hypotheses
3. Identify an appropriate source of data for this purpose and define an informative subset
4. Review basic ethical and legal principles applicable to the collection, maintenance, use and dissemination of these data
5. Identify an appropriate study design and method of analysis
6. Use statistical analysis software to estimate and test the hypothesized associations
7. Apply appropriate analytical techniques to calculate the pertinent epidemiology measures
8. Apply descriptive and inferential methods to deduce results
9. Apply the concepts of error and bias in the evaluation of the results
10. Interpret the results addressing the strengths and limitations of the inference(s)
11. Communicate this information to professional and lay audiences.

II. Cross-cutting Competencies

The training in epidemiology and its practicum experience are embedded in the broader context of public health as a discipline, as follows.

1. Communication

1. Describe a specific public health problem in terms of its magnitude, person, time and place
2. Develop cogent and persuasive written materials regarding public health topics
3. Communicate information on a public health topic to professional and lay audiences.
4. Deliver oral presentations using recognized criteria for effective information dissemination
5. Adapt language and delivery modalities to specific audiences.
6. Use media, advanced technologies and community networks to disseminate information about public health issues
7. Facilitate collective information sharing, discussion and problem solving

2. Diversity and Cultural Competency

1. Demonstrate sensitivity to varied cultural, ethnic and socioeconomic backgrounds of individuals and groups
2. Demonstrate tolerance with differences in perspectives, norms and values of others
3. Recognize the varied levels of health access among individuals and within communities
4. Interact productively with diverse co-workers, partners and other stakeholders

3. Leadership

1. Recognize the importance of maintaining positive relationships with stakeholders.
2. Adopt best practices from other disciplines, fields, or organizations.
3. Solicit ideas and opinions to learn from others in forming decisions.
4. Demonstrate basic negotiation and conflict management skills.

4. Professionalism and Ethics

1. Review basic ethical and legal principles applicable to the collection, maintenance, use and dissemination of research data
2. Establish the basis for lifelong learning in the field of public health
3. Apply ethical principles in both personal and professional interactions
4. Consider the effect of public health decisions on social justice and equity
5. Apply evidence-based concepts in public health decision-making

Practicum Options

The goals of the Epidemiology practicum can be met through an intensive, mentored, skill building experience in which the student applies Master' competencies with a main focus on research practice or public health practice. A blend of the two perspectives is desired, although an emphasis on one or the other would suggest different settings for the practicum experience (ranging from community organizations, public health agencies, NGOs, governmental agencies, or academic settings, among the many options).

Active participation by a skilled public health researcher or a public health practitioner is required to guide the student and support his/her professional development during the practicum. If the practicum is completed in the context of ongoing research in the Department of Epidemiology the student's academic advisor may be able to assume the role of Practicum Advisor. If the setting for the practicum is another academic institution or another entity of the UNC System, another faculty person can serve the role of Practicum Advisor. If the practicum is to be conducted in partnership with a community, public, or private sector institution, an on-site Practicum Preceptor must be identified as part of practicum planning. A Faculty Practicum Coordinator, Dr. Lorraine Alexander, is available to Epidemiology students and faculty to assist in the planning of the Master's practicum and its implementation. The Faculty Practicum Coordinator also plays a role in the evaluation of the practica to safeguard confidentiality and to build an information base for the benefit of students and faculty.

Process

These Practicum Guidelines provide the framework for the planning, conduct and evaluation of the Master's practicum. Master's students plan their practicum during the first year in the program and may register for EPID 900 (Study Implementation in Epidemiology) during any semester following their first year (students enroll in the section assigned to the practicum advisor; if no section has been assigned, students register for section 001 through the Student Services Office). Students are encouraged to plan their practicum during their second semester, in consultation with their academic advisor and the Practicum Coordinator if applicable, and to register their plans for a practicum with the Office of Student Services by the end of their first year in the program. A Practicum Registration form is used for this purpose.

<p>NOTE: All practicum forms are online at http://www.sph.unc.edu/epid/department_of_epidemiology_forms_2381_2655.html</p>
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No later than two months prior to the intended practicum experience students submit a practicum proposal (see online form) for review by their academic advisor and/or the practicum advisor. Additional time must be allowed for planning if the practicum requires field placement and coordination with an off-campus practicum preceptor. Students who wish to set up an international practicum are encouraged to extend the time line for planning.

In the practicum proposal the student specifies the aims, the anticipated practicum activities, the competencies to be exercised, the field placement if applicable, and a time line. The proposal must be endorsed by the academic advisor, and a practicum preceptor if applicable. If suitable for the proposed practicum experience the academic advisor can serve as the practicum preceptor.

Completion of EPID 900 requires that students register the practicum report and the practicum evaluation with the Office of Student Services. The practicum report is structured as a scientific or technical report that describes the practicum goals and its implementation, as well as source materials, documentation, field reports, evaluations and discussion, as applicable. The report can serve as source material for EPID 992 (Master's paper). The practicum evaluation includes assessments by the student, the practicum advisor, and the preceptor if applicable (see online forms).

Planning the Practicum Experience

The planning, implementation and evaluation of the practicum is a joint effort among the student, and the practicum advisor. If the practicum includes a field placement or internship at an off-campus agency the practicum preceptor at that institution also participates in the planning of the proposed practicum. The departmental Practicum Coordinator acts as a facilitator, at the initiative of the student. The process of identification, competing applications and selection of practicum opportunities is addressed below. The Office of Student Services manages the practicum as an academic requirement.

Practicum Opportunities

Students hold the primary responsibility for identifying and selecting a practicum. Academic advisors and the departmental Practicum Coordinator facilitate this process. Career Services serves a central coordination role at the level of the School of Public Health by making available to students known opportunities for practica and internships. Students are expected to review postings of practicum opportunities, such as at the School of Public Health Career Services (http://www.sph.unc.edu/student_affairs/career_services.html) and to consult with faculty in identifying suitable opportunities for practica.

Matching Students with Practicum Opportunities

Students seek out, or respond to opportunities for internships or practica. Faculty or the agency contacted may go through a selection process that solicits students' resumes or applications. If requested by an agency that offers internship / practicum opportunities a candidate may be selected by Career Services or by the Department from among students applying for the internship.

Funding

Funding is not an expectation for a practicum although students may apply for funding to support a practicum experience or project associated with it. Funded internships are infrequent, but when considering off-campus internships students are encouraged to inquire about options for reimbursement of costs associated with travel and housing.

The Practicum Advisor

All Epidemiology students have a faculty advisor who supports and guides the student in the development and planning of the practicum experience. This person is identified as the Practicum Advisor. The student's academic advisor may also serve as practicum advisor. The practicum advisor is selected by the student. Tenure track or research track faculty can be considered, whether in the Department of Epidemiology, other departments or centers at UNC, or other institutions if this meets with the approval of the student's academic

advisor. Adjunct faculty can serve as practicum advisors, in which case the student's academic advisor serves as a resource to the adjunct faculty member on academic policies.

Practicum Preceptor

A practicum preceptor is identified at the department or agency that hosts the student during the practicum, to serve as a guide and mentor during the internship. The practicum preceptor usually works at the agency, university or firm that sponsors the practicum and has the familiarity with the project and the professional skills necessary to mentor the student. If the student's needs are not met by the practicum preceptor the student's academic advisor is consulted to assist in arriving at a solution.

Time Line

A practicum proposal approved by the practicum advisor must be registered with Student Services at least two weeks prior to start of the practicum. Planning for the practicum should begin during the second semester of the Master's program and no later than two months prior to the intended practicum experience. Milestones to be considered in the planning of a practicum, its conduct and evaluation are outlined below

The Practicum Proposal

A proposal formally establishes the aims of the practicum as a learning experience and the conditions under which the student and the advisor(s) plan to conduct the activity. During the planning of the practicum the aims of the practicum and the anticipated activities are cross-referenced with the Master's competencies, to identify the experiential opportunities to exercise these competencies as part of the practicum. As part of the evaluation of the practicum students re-visit the practicum aims and the referenced Master's competencies to assess the degree to which the practice experience was successful.

Elaboration of the practicum proposal is the responsibility of the student, with input from the practicum advisor and of the practicum preceptor, if applicable. Once signed and submitted to Student Services the proposal defines the scope of the practicum and serves as the basis for the working relationship between the parties. The practicum proposal must be submitted two weeks prior to the start of the practicum; its modification requires the agreement of the parties who signed the proposal.

To facilitate planning the practicum proposal asks the student to identify whether the practicum activities are intended to lead to a Master's paper. A shell document for students to use in the preparation of the practicum proposal is available online with the other practicum forms.

Institutional Review Board

ALL practicum proposals are submitted to the UNC Institutional Review Board. At a minimum a Determination Form is submitted with the information necessary to permit an assessment by the Board whether review by the IRB is required (see <http://ohre.unc.edu/forms.php>). Students are required to submit such a determination by the IRB, or an approval by the IRB of the proposed research, with Student Services to be filed with their practicum proposal. A practicum may not commence without an IRB determination or approval. Students should consult with their advisors in preparing the application.

Practicum Evaluation

The practicum evaluation includes assessments by the student, the practicum advisor, and the practicum preceptor if applicable (see online forms). Evaluation forms are submitted to the Faculty Practicum Coordinator and must be in place before a final grade for EPID 900 can be processed. The final grade is assigned by the practicum advisor.

Practicum Report

Before the practicum is considered complete (and a final grade is assigned for EPID 900) the student's practicum report and the non-confidential portions of the practicum evaluations are filed with the Office of Student Services. The report includes a two to five page narrative that describes the practicum, the degree to which its goals were met, the main strengths and weaknesses of the experience as a learning opportunity and professional experience. Also included is a checklist of the Master's Competencies addressed during the practicum. Recommendations and suggestions for consideration in future practica are encouraged. Also included in the report are pertinent source materials, documentation, field reports, data summaries, as applicable.

Practicum and Master's Paper

The data and the materials collected as part of the practicum can serve as source material for EPID 992 (Master's paper), unless the agency hosting the practicum / internship has policies that prevent such uses of the data. If chosen by the student and with approval from the advisor(s) a draft Master's Paper can be part of the Practicum Report (in addition to the elements listed above).

It is recommended that the application submitted to IRB for a practicum proposal be broad and consider the use of the information and data collected as part of the practicum. Specifying the option of a Master's paper and publication(s) to emerge from the practicum activity can obviate the need for a separate IRB application for the latter.

Practicum Grading

The practicum is graded based on consultation between the practicum advisor and the practicum preceptor, if applicable. The practicum advisor is responsible for arriving at a grade that reflects the broadest possible input from all parties involved in the student's practicum experience.

THE MASTER'S COMPREHENSIVE EXAMINATION

The Master's Comprehensive Examination is a formal requirement of the Graduate School, and is covered by the campus Honor Code. The student must be registered at the time of the examination.


Past examinations, with their answer keys, are kept in the epidemiology student room, 2106 McGavran-Greenberg Hall. Students are encouraged to review these.

Registration deadline for 2008 offering:	April 7, 2008
Examination date:	May 7, 2008 from 8:45 am – 1:00 pm
Students informed of outcome:	by letter in mailbox within 2 weeks of exam.

Purpose:

The Master's Comprehensive Examination is intended to provide an opportunity to demonstrate mastery of basic epidemiologic concepts and methods and to diagnose any major areas of deficiency. A passing score on the examination is a requirement both for the MPH and the MSPH.

Timing:

 The examination is given each May. **Master's students are expected to take the exam in the first year of the program.** A student who does not earn a passing score may take the examination a second time, when it is next offered.

A maximum of 4 hours is allowed for the examination. The format is generally short answer (true-false, multiple choice, and open-ended questions). A medical dictionary will be available from the Student Services Office upon request. A student may bring into the examination:

- a calculator,
- a foreign language dictionary, and
- not more than two pages of the student's own notes (this can be one two-sided page, or two one-sided pages)

Submission of an exam is final. Students should review their exams carefully prior to submitting them to the Student Services Office.

The examination emphasizes mastery of the basic curriculum in epidemiologic concepts and methods, such as are covered in EPID 705, EPID 710, EPID 711, BIOS 600, BIOS 545, and EPID 715, as well as in substantive courses and seminars. Familiarity with material normally covered during the first year of the program is expected. Some degree of substantive knowledge may be needed, since epidemiologic concepts and methods are applied in a biomedical or biobehavioral context. However, substantive knowledge itself is not a focus of the examination.

The competencies that Master's students should possess by the end of their first year in the Department can be characterized largely in terms of "epidemiologic literacy." This includes:

1. Being conversant with epidemiologic terminology and concepts;
2. Familiarity with the major epidemiologic research designs and their strengths and weaknesses;
3. Ability to compute and interpret rates, measures of effect (RR, OR), and confidence intervals.
4. Awareness of problems of measurement and selection, and biases that may affect study results;
5. Familiarity with concepts of confounding and options for controlling same;
6. Familiarity with the concept of effect modification and methods of assessing this, including incorporating effect modification into design and analysis strategies;
7. Understanding of use and interpretation of basic statistical procedures for epidemiologic data;
8. Appreciation of the need to consider biological, psychosocial, and health care factors in studying epidemiologic phenomena; and
9. The ability to read, understand, and critique a report of an epidemiologic study which is written for a sophisticated audience, such as readers of the American Journal of Epidemiology, Epidemiology, the Journal of Chronic Disease, New England Journal of Medicine, American Journal of Public Health, or similar journals.

The examination will be based on a single article each year. The article will not be known to the students in advance.

Most questions will be drawn or adapted from a panel of "generic" questions that may change little from year to year. See Appendix III for a list of these questions. The best way to prepare for the exam is to peruse back issues of the relevant journals, pick an article or two and answer the "generic" sample questions.

Appeal of Failing Grade:

An appeal of a failing grade is considered by the Graduate Studies Committee.

An appeal must be brought within 10 working days from the date of notice of the examination grade unless there are compelling reasons for delay. Appeals must be made in writing and should be presented in such a way that the appeal can be considered without revealing the identity of the student involved. The appeal should be self-contained (other than references to standard textbooks or examination materials). We request that a student intending to appeal notify the Student Services Office as soon as possible to facilitate scheduling of a Graduate Studies Committee meeting. Such notice is optional however, and does not obligate the student to make an appeal.

Students are expected to decide on their own whether to appeal an examination outcome. The examination can be discussed with the advisor and/or other faculty members. However, faculty should not be consulted, nor should they offer an opinion on whether to appeal an examination result. In preparing an appeal, students should neither solicit nor receive assistance.

Appeals are regarded as part of the examination, and therefore subject to the Honor Code. The appeal must be the student's own work and be accompanied by a signed pledge. To preserve anonymity, the pledge will be separated from the appeal itself and retained in the Student Services Office.

The Examination Committee will decide the appeal without knowledge of the student's identity. To preserve anonymity, all communication between the student and the Committee will take place through the Student Services Office until the appeal has been decided. The Committee will render its decision within 10 working days after the appeal is received, or as soon thereafter as a quorum of the Committee is available.

In reaching its decision the Committee will award full credit to answers that are judged to be equally as good as those originally proposed. The Committee decision is final with respect to the substantive issues. The student may appeal to the Department Chairperson only on grounds of alleged irregularities in procedure.

THE MASTER'S PAPER and ORAL PRESENTATION OF MASTER'S RESEARCH

The Master's Paper is a thesis substitute and is a major requirement for both the MPH and the MSPH degrees. The purpose of this assignment is to challenge the student to apply epidemiologic principles and methods to a specific clinical or public health issue. In carrying out the project, the student will be expected to select a scientifically relevant, feasible topic; develop a rationale and a researchable hypothesis; and either synthesize the body of epidemiological knowledge on the issue, or analyze a dataset to evaluate the hypothesis. The paper is filed with the Student Services Office and is available for student and faculty reference. The research is also presented orally in an appropriate forum.

Master's Paper Committee

Development of the master's paper is supervised by a committee consisting of a master's paper advisor and a second reader. **At least one must have a primary appointment (neither adjunct nor clinical) in the Department of Epidemiology.** Composition of this committee should be decided at the time of initial planning for the project.

Content of the Master's Paper

In the master's paper the student should demonstrate proficiency in one or more substantive area(s), and in basic epidemiological concepts and principles. The latter should include the following:

- Population-based study designs
- Measures of occurrence
- Measures of effect
- Sources of bias and confounding

Form of the Master's Paper

The Master's Paper is a thesis substitute that demonstrates command of epidemiologic principles and methods, by means of a research project focused on a specific clinical or public health issue, and based on extant data resources. The Master's Paper requires a proposal approved by both members of the Master's Paper committee, completion of an analytic project, and preparation of a scientific report. Following approval by the two committee members, the Master's Paper is submitted to the Department as a scientific report formatted as a manuscript for publication. Submission for publication is not required (but encouraged). The proposal itself does not have to be submitted to the Student Services Office.

In implementing this aspect of the Master's program, the student is expected to select a scientifically relevant, feasible topic, based on a fully developed rationale that addresses its scientific and/or public health merits as reflected in the Master's Paper proposal. Also included in the proposal are the hypothesis(es) to be tested, the proposed study design and its rationale, an analysis plan, and an outline of the potential interpretation of the anticipated result(s). A proposal template is available from the Student Services Office or online through the Department's web site.

The course requirements for the MSPH and MPH degrees are as stated in Academic Policies (i.e., EPID 722 and 726 are not required for the Master's Paper).

Exceptions to the above requirements may be proposed with approval by the student's academic advisor, but must be approved by the Graduate Studies Committee.

Identifying a Master's Paper Topic

Selecting an appropriate topic can sometimes be a stumbling block for students. Although the advisor will assist in topic identification, it is the student's responsibility to initiate the process by offering some preliminary ideas to the advisor. Appendix IV provides suggestions for defining the topic.

Human Subjects Review

EVERY student must complete training in the protection of human research subjects. The website for this training is <https://www.citiprogram.org/default.asp>. Students should select training in either Group 1 or Group 2. Group 3 does not suffice. No other human subjects training can substitute for this requirement. Students may obtain a copy of their training verification online at http://cfx3.research.unc.edu/training_comp/.

ALL proposed master's paper research must be submitted to the School of Public Health Institutional Review Board as soon as the project has been approved by the advisor and reader (see above). This applies to all proposals, whether sponsored or not sponsored. Submitting a "determination form" (Determination Whether Research or Similar Activities Require IRB Approval, found at

ohre.unc.edu/forms.php) often is sufficient. Prior IRB approval for the sponsoring research project, the Principal Investigator or the academic advisor does not substitute as IRB approval for the student's own academic work. Meetings of the Review Board are held at approximately one-month intervals. Applications for review should be submitted on IRB forms at least two weeks in advance of the expected date of review (Refer to Appendix V). Students should consult with their advisors in preparing IRB applications.



Upon receipt of IRB approval, the student must complete the Verification of Compliance with Institutional Review Board Requirements form. A copy of the IRB committee's decision must be attached to the form. **In addition, the title page of the Master's Paper must reflect the date of IRB approval.**

The Co-Chairs of the Public Health IRB are Professors Trude Bennett, Ruth Humphry and Mary Lynn. The Board Administrator is Ms. Barbara Griese. Inquiries and requests for forms, status of application and other questions should be routed through her. She may be reached at 966-9347, or by email at griese@email.unc.edu. See web site at <http://ohre.unc.edu>.

Data Use Agreements

If using data that are not publicly available, the IRB Committee and the Department require a data use agreement form. This form is available from the Student Services Office or online through the Department's web site. This form should be signed by the Principal Investigator of the study that provides access to the data, or the person legally authorized to release it.

Schedule for Completing the Master's Paper

At least two months before the anticipated date for approval of the Master's Paper the student will file with the Student Services Office a written schedule for revision and approval of the Master's Paper. The schedule should carry the approval of both committee members. In preparing the schedule the student should take any potential conflicts into account.

Sufficient time should be allowed for the following:

- a thorough first review of the entire paper by both committee members;
- revision time required by the student;
- a second review by the committee members, at least four weeks prior to anticipated date for final approval of the complete, revised Master's paper, to permit final modifications that may be requested.

The following is offered as an example of such a time schedule:

8 weeks prior to the anticipated date for final approval, the completed major paper is received by the committee members. At this time the student should arrange an appointment with each member to discuss their critique of the paper and revisions desired. The appointment would optimally be 2 or 3 weeks after the committee members have received the complete draft.

4 weeks prior to the anticipated date for final approval, the final draft of the Master's Paper is received by the committee members. Final comments and suggested revisions are provided to the student within two weeks so that final revisions can be made.

1 week prior to the anticipated date for final approval, the finished Master's Paper is received by both committee members so that they can read the final product and verify that all revisions have been made satisfactorily.





In preparing this schedule, the student should note Graduate School deadlines for the desired graduation date. (<http://regweb.oit.unc.edu/calendars>).

Format and Submission of the Master's Paper

The Master's Paper is submitted to the Department in the format of a manuscript submitted for publication. There are no space limits, nor other constraints to demonstrating mastery of the subject, the sophistication of the analytic treatment, and the discussion of the results. These specifications apply unless both members of the Master's Paper Committee agree on an alternate. If the Master's Paper is submitted for publication, it is recommended that the student follow the authorship guidelines promulgated by the International Committee of Medical Journal Editors (ICMJE), which are posted at <http://www.icmje.org>. IRB approval status as well as financial disclosures of the authors should be mentioned. For the latter, criteria for financial disclosure can be consulted at N Engl J Med 2002; 346(24):1901-2, Jun 13, 2002.

[Although there is not a departmental requirement at present for publication of the master's paper, it is strongly encouraged. Students choosing to publish should refer to Appendix XI for publication practices.]

The master's paper is not a thesis, but rather a "thesis substitute." Thus, many of the formal thesis requirements do not apply. Specifically, there is no final examination, defense of the master's paper, or fee, and the paper itself is not filed with the Graduate School.

-  Formatting Guidelines: Use Arial or Times New Roman font; use a type size of 11 or 12; page numbers centered on the bottom of the page in a footer; margins of left margin of at least 1¼ inch; other margins at least one inch. The Graduate Schools handbook, "A Guide to the Preparation and Submission of Theses and Dissertations," does not apply since this is not a formal thesis.
-  **Funding sources should be acknowledged in a statement such as: "This research was supported in part by a grant from [name of institution]."**
-  **One copy of the Master's paper is submitted to the Student Services Office** in accordance with the University schedule. This is the official copy, and must carry the signatures of both members of the student's master's committee on the title page, as well as date of IRB approval. Copies of the final paper are also given to the members of the student's committee, if desired. See Appendix VI for sample title page.
-  The department copy of the paper must be bound in the "velo" style. This type, with the plastic strip binding and a good quality heavy paper cover, is available at copy centers for a nominal cost. The cover of the paper must be labeled with the student's name and the title of the paper.

Students must be registered for 3 credit hours of EPID 992 at the time the master's paper is turned in.

Master's papers are kept in the department dissertation room (2106A), and are available to students and faculty for use within the building. See Carmen or Nancy for access.


Oral Presentation of the Master's Paper Research

Presentation of the Master's paper at a seminar, scientific, or professional meeting is required. The leaders of each program area are responsible for providing an adequate forum for this presentation for Master's students in the program. Students not affiliated with a program area work with their advisor to identify an equivalent opportunity for presentation of the Master's paper. The student's master's paper committee is responsible for verifying that the requirement has been met satisfactorily.

Guidelines for the presentation are as follows:

- a. The student must be primarily responsible for preparation for the presentation. For example, presentation of slides prepared by a co-investigator is not allowed if the presentation is to fulfill the Master's requirement.
- b. The topic must be epidemiological.
- c. The audience must be knowledgeable in both epidemiology and the substantive area, so that a meaningful, probing discussion is possible.

The forum for a Master's presentation could be a program area seminar or affiliated program seminar series (e.g., Clinical Scholars forum). In some instances, presentation at a regional, national, or international meeting would meet this requirement. Individually-scheduled presentations could be held at any time throughout the fall and spring semesters. Use of the Wednesday afternoon seminar period (3:30-4:30 p.m.) is particularly encouraged for this purpose, on dates when no seminar or department meeting is scheduled. In general, individual presentations during the summer are discouraged.

 The student and committee are responsible for scheduling and announcing the presentation to achieve an appropriate forum. Audience attendance should be encouraged by prominent announcements of student presenters, research topics, and advisors. **The presentation must be announced via the Epidsems distribution list (epidsems@unc.edu) at least one week in advance.** The announcement should include student name, title of presentation, indication that this is a master's presentation, name of advisor, date, time, and location. Program areas are encouraged to issue specific invitations to colleagues outside the department, citing the paper titles.

To reserve the EPID conference room, email Chandra at ccaldwel@email.unc.edu. To reserve a room in the SPH, go to http://www.sph.unc.edu/iis/room_reservations_660_3696.html

The following sequence is recommended:


1. Student prepares preliminary draft of the masters' presentation and provides to each of the two readers at least two weeks prior to anticipated date of master's paper presentation.
2. Student discusses draft presentation with each of the two readers. Suggestions are provided.
3. Master's paper presentation (as work in progress, not as a final defense).

At least one of the two readers attends the presentation, provides feed-back to the student and signs the Oral Presentation form indicating that this step has been completed satisfactorily (or otherwise). If neither reader can be present at the presentation, it is the responsibility of the primary reader to identify a substitute among the faculty. If the presentation is not satisfactory, a meeting of the two readers and the student is required prior to proceeding with the masters' paper.

4. Student completes master's paper **after the oral presentation**, and submits it to both readers at least one month prior to the date established by the Graduate School for completion of masters' programs in the pertinent semester. (**Graduate School completions deadlines can be found at gradschool.unc.edu/graddeadlines.html.**)

5. Student responds to comments from both readers, and submits final version of masters' paper to both readers according to the schedule previously established with both readers (but at least two weeks prior to the date of completion of masters' program established by the Graduate School).
6. In order for the readers to approve a masters' paper, a meeting of the student and the two readers may be needed. Such a meeting may be requested by either of the two readers or the student, but is not required.

Master's Paper Report


 When the master's paper has been approved by the student's committee AND **the work has been presented in an appropriate forum**, a Report of Approved Substitute for a Master's Thesis is filed with the Graduate School. This report completes the student's master's degree program. The final, signed Master's Paper must be submitted to the Student Services Office prior to submission of the report form to the Graduate School.

Suggested Milestones and Time Table for Preparation of the Master's Paper

<u>Milestone</u>	<u>Suggested Time Table*</u>
1. Selection of Topic	1st Year, Summer, 1st session
2. Literature Review	1st Year, Summer, 2nd session
3. Data Analysis or Synthesis of Issues	2nd Year, Fall & Spring
4. Oral Presentation	2nd Year, Spring
5. Final Draft	2nd Year, Summer
6. Completion of Paper	2nd Year, Summer

* This timetable is appropriate for students enrolled in the standard two-year master's program. MPH students who must work within a shorter time frame will need to carefully plan their program with their advisor(s) in order to ensure fulfilling all requirements within the time allowed.

MASTER'S DEGREE APPLICATION FOR GRADUATION

 To be eligible for graduation in a given semester a Master's student must apply for the degree early in that semester. **Degree application forms and deadlines can be found at <http://gradschool.unc.edu/graddeadlines.html>**. If a student fails to graduate in the term applied for, they must re-apply; no prior application will suffice.

PROMOTION OF MSPH STUDENTS TO THE DOCTORAL PROGRAM

Doctoral students who are required to first obtain the MSPH must complete all requirements for the master's degree, including the master's comprehensive examination and master's paper, before proceeding with doctoral research. A recommendation for the promotion of a master's student to the doctoral program is brought to the faculty by the student's prospective doctoral advisor as a representative of a promotion committee of three, to

include the student's master's advisor. The faculty and chairperson consider the recommendation and make a final determination as to whether the student may proceed in the doctoral program.

Criteria for Promotion

- The applicant has identified a doctoral advisor. In addition to the established function of an academic advisor, the doctoral advisor assists the student in identifying a doctoral research topic, may serve as the chair of the doctoral committee or assist in identifying a chair, and helps in developing the doctoral research proposal until the chair of the doctoral committee has been identified.
- The advisor indicates that this student has achieved a satisfactory level of professional development consistent with doctoral research.
- All masters-level course requirements have been met satisfactorily or are in progress toward satisfactory completion.
- At least one satisfactory, complete draft of the Master's Paper has been submitted to the advisor and second reader.
- The advisor and faculty are satisfied that the applicant has a clear potential for graduate work at the doctorate level and independent work as an epidemiologist at the doctoral level.

Procedure

The student arranges the promotion committee to discuss the promotion request. This committee should consist of three faculty members, to include the master's advisor if this person is different than the doctoral advisor, and is chaired by the prospective doctoral advisor. The third member of the committee is selected from the members of the Graduate Studies Committee (names available from Student Services Office), and should not be one of the advisors. In the event that the master's and doctoral advisors are the same, the student should identify an additional faculty member to serve on the committee, ideally someone who has had extensive interaction with the student. If the doctoral advisor is an adjunct or clinical member of the faculty, the student must identify a chairperson who has a primary appointment in the Department of Epidemiology to serve on the promotion committee.

In advance of the promotion committee meeting, the student should provide (in no particular format) the following materials to the committee members:

- Coursework results, including numerical grades for EPID 710 and EPID 715 (available from Student Services Office)
- Master's examination results (available from Student Services Office)
- Summary of Master's paper progress
- Names of faculty with whom the student has worked
- Statement of dissertation plans as they appear at that time
- Student's CV
- Copy of student's transcripts
- Form -- "Record of Committee Action for Promotion from MSPH to PhD"

The student meets with the Promotion Committee long enough to answer any questions and is then excused. Following discussion by the full faculty, the student is informed of the outcome by letter.

Master's students who are approved to proceed to the doctoral program must register in the next succeeding regular (Fall or Spring) semester or formally apply to the program at a later date.

ADVANCEMENT FROM THE MPH TRACK TO THE PhD TRACK

Since students are admitted for the MPH degree with the assumption that it will be a terminal degree, there is no promotion option. Those who are interested in continuing for the PhD must apply for admission to the PhD program through the Graduate School. The faculty and admissions committee review the application with the pool of doctoral applicants for that year and a recommendation is forwarded to the Graduate School.

INFORMATION SPECIFIC TO DOCTORAL DEGREE STUDENTS

COMPETENCIES FOR THE PhD

The PhD program enrolls students who have a master's degree in epidemiology or another advanced degree and/or experience such that they have acquired most of the knowledge and competencies provided in the MPH or MSPH programs. The PhD program has a public health orientation and is designed to equip persons to function as independent researchers in academia, research institutes, government, or industry. While graduates often seek additional experience by way of a postdoctoral training, a graduate of the PhD program is prepared to function as a faculty member of a graduate program in a university or in a position in a public health organization, multi-disciplinary setting, government or industry of comparable independence and responsibility. The PhD program presupposes a foundation of knowledge of concepts and skills of epidemiology, an understanding of public health concepts and the population perspective, and the ability to read with sophistication reports of clinical and epidemiological studies. However, it is anticipated that students may need additional work in one or more of these areas, depending upon their background before entering the program. The PhD program assumes that graduates' professional identity and primary area of expertise will be in epidemiology, though the student may possess a prior area of professional expertise (such as medicine, nursing, or pharmacy). The competencies of the doctoral program in Epidemiology fully meet the competencies set out for doctoral education at the UNC School of Public Health.

In addition to the ability of carrying out the competencies of the masters degree programs, upon satisfactory completion of the PhD degree program the student will be able to:

1. Critically review the scientific literature, synthesizing the findings across studies, and rendering an informed judgment on the state of knowledge in that area, presenting appropriate implications for policy, professional practice, or personal behavior, and deriving implications and avenues for further research.
2. Identify researchable study questions that will advance scientific knowledge about a topic of public health significance.
3. Design epidemiological studies to address questions of public health importance.
4. Be familiar with the principles of ethics in research and the ethical conduct of research involving human subjects.
5. Develop a research proposal that states a study question or questions, presents a scientific and public health rationale for their significance, and specifies a detailed methodology for carrying out an epidemiological study to answer the question or questions.
6. Design and conduct, supervise, or collaborate in the conduct of the data collection, data management, and study management activities for epidemiological studies in a clinical, occupational, or community setting.
7. Manage or supervise the management of the data from epidemiological studies, including quality control, documentation, and data security procedures;
8. Analyze data from epidemiological studies using cross-sectional, case-control, or cohort designs. Be a skilled data analyst able to use state-of-the-art statistical methods appropriate for the study design, and able to incorporate categorical or continuous variables, control for covariates, and examination of effect modification.

9. Interpret data from statistical analyses of epidemiological studies, in the context of findings from other studies and relevant information and theories from biological, physical, and social sciences.
10. Present the findings of an epidemiological investigation, in writing and orally, to a scientific audience.
11. Submit the findings of the doctoral research for external peer reviewed publication.
12. Critically review scientific manuscripts and research proposals.
13. Explain complicated epidemiological concepts and teach epidemiology courses at the graduate level.
14. Following graduation, read the literature and understand the benefits and limitations of methodologic developments and scientific advances.

SUMMARY OF REQUIREMENTS FOR THE DOCTOR OF PHILOSOPHY (PhD)

The PhD in Epidemiology is the academic doctoral degree. It is a research degree, centered around a major research project within a broad public health orientation and seeking to integrate related disciplines. The program averages three to five years following a master's or other advanced degree. Coursework and preliminary examinations normally require two years, with the remainder of the time devoted to the research and completion of the dissertation. The Department specifies degree requirements within a framework prescribed by the Graduate School. See Appendix XV for a checklist of doctoral milestones.

Required Core Methods Courses

- EPID 705: Introduction to Logic and Probability Logic in Epidemiology
- EPID 710: Fundamentals of Epidemiology [EPID 711 may be substituted by clinicians]
- BIOS 600: Principles of Statistical Inference **Or**
 BIOS 550: Elements of Probability and Statistical Inference I
 [BIOS 541 may be substituted by those in the Clinical Scholars Core curriculum]
- BIOS 545: Principles of Experimental Analysis **Or**
 BIOS 551: Elements of Probability and Statistical Inference II
 [BIOS 542 may be substituted by those in the Clinical Scholars Core curriculum]
- EPID 715: Theory and Quantitative Methods in Epidemiology
- EPID 718: Epidemiologic Analysis of Binary Data
- EPID 722: Epidemiologic Analysis of Time-to-Event Data
- EPID 725: Research Planning Workshop
- EPID 726: Epidemiologic Research Methods

Additional Courses

- Substantive epidemiology courses, minimum of two, each in a separate discipline area
- Higher level biostatistics course/s as determined with advisor and specified by intradepartmental review committee (e.g., BIOS 664, BIOS 665, etc.)
- Other coursework as determined with advisor and specified by intradepartmental review committee.
- EPID 994: Dissertation, minimum of a total of six credit hours required (Typically three credits when defending proposal and three credits at final defense. Additional credit hours as needed.).

Other Degree Requirements

- One semester teaching experience in epidemiology (see page 35 for list of approved courses)
- Practicum requirement demonstrating experience in a minimum of two study implementation activities (see page 36 for additional details)
- Competence in statistical computing and data management; may be satisfied by:
 - ◊ EPID 700: SAS and Data Management
 - ◊ BIOS 511: Introduction to Statistical Computing and Data Management, or
 - ◊ BIOS 541/542
 - ◊ a comparable SAS or Stata course on this campus (i.e., through IRSS) or elsewhere, or
 - ◊ prior experience using SAS or Stata (exemption exam required)
- Competence in scientific writing
- Intradepartmental Review planning session
- Preliminary Doctoral Examinations:
 - Written examination: The Doctoral Qualifying Examination
 - Oral Examination: On the dissertation proposal primarily
- Specific written questions on research area (at discretion of student's dissertation committee)
- Submission of a minimum of one manuscript from dissertation research to an external peer review mechanism (see page 45)
- Doctoral Dissertation
- Final Defense of Dissertation

Doctoral students plan coursework beyond the core requirements in consultation with the advisor and the intradepartmental review committee. Doctoral students are expected to take some higher level biostatistics. Additional substantive epidemiology courses are strongly recommended.

Students proceeding from the master's program in this department complete many of the doctoral course requirements during the master's phase. These courses will already be part of the student's record. No formal waiver is necessary.

A sample schedule for the PhD program can be found in Appendix VII.

Scientific Writing

Clarity of expression is one of the elements evaluated in all written work, particularly in the doctoral written examinations and the dissertation. Some training possibilities for students who believe they might benefit from additional experience in this area are:

- English 33: Scientific Writing [This is an undergraduate course, and will not count toward a graduate degree, but may be helpful.]
- Duke University Continuing Education: courses in scientific writing offered from time to time--request catalog by calling 684-6259.
- Work with an editor or study group.
 - The Writing Center: provides free individual tutorials, campus workshops; writing conferences, grammar hotline, etc. to help students improve writing skills. They are located in the Phillips Hall annex (lower level). Call for an appointment at 962-7710.
- Consult textbooks and style books. Two useful references (among many others available) are: Robert A. Day, How to Write and Publish a Scientific Paper, 3rd ed., Phoenix (Oryx Press, 1988) Kate L. Turabian, Manual for Writers of Term Papers, Theses, and Dissertations, 5th ed., Chicago (University of Chicago Press, 1987)

CREDIT TRANSFER

A doctoral student may request transfer of relevant graduate courses from accredited institutions or from other graduate programs within this institution (contact the Student Services Office). The doctoral student may be examined on all transferred coursework at the time of the doctoral oral examination. The examining committee then makes a recommendation to the Graduate School, which has the final responsibility for approving the transfer.

“RESIDENCY” REQUIREMENTS [not the same as for tuition purposes]

The Graduate School requires a minimum of four full semesters of residence credit. At least two of these semesters must be earned in continuous registration of no fewer than 6 credit hours on this campus. This requirement may be fulfilled by two regular semesters of full-time registration (nine or more credit hours) or by less than full-time registration over a larger number of continuous semesters. The residence credit hour requirement requires UNC-Chapel Hill registration (i.e., no transfer credit). A total of at least six semester hours of credit must be earned for dissertation (EPID 994).

REGISTRATION REQUIREMENTS

When all residence credit and course requirements have been completed, **students using University resources* to conduct their dissertation research and/or who need to maintain full-time status for other reasons must register for three credit hours of EPID 994 (Fall/Spring).** Students not using University resources may either apply for a leave of absence (which “stops the clock” for time to degree) or simply not register (both require readmission to the Graduate School). These forms can be found at <http://gradschool.unc.edu/forms.html>. **Students must be registered for at least 3 hours in order to receive a stipend, and/or qualify for University Graduate Student Health Insurance.** This constitutes full-time enrollment (with or without additional courses). Full-time student status must be maintained for loan deferment or student visa status. Refer to the Graduate School Handbook for additional details.

LEAVES OF ABSENCE AND EXTENSIONS

Students may request a leave of absence if they will not be making progress towards their degree for a period of time. A leave of absence “stops the clock” so that the time does not count against your time to degree. When extenuating circumstances warrant, The Graduate School may grant an extension of the degree time limit. Either request requires departmental and Graduate School approval. See Graduate School handbook for additional details or consult with Student Services Office.

If a student remains unregistered for five years or longer and wishes to resume graduate study, he/she will need to formally apply for admission (application, application fee, GRE scores, etc.) by the Graduate School designated deadlines.

*If you are defending your proposal, meeting with your advisor, etc., you are using University resources and must be registered.

It is important to remember that a doctoral program in Epidemiology is individually planned, and involves more than the relatively small number of courses listed as required for all students. A student will need at least four semesters on campus to complete coursework, preliminary written and oral examinations, and to secure approval of the dissertation proposal.

MINOR PROGRAMS

A minor is not a requirement of the doctoral program, but may sometimes be desirable. Provisions for minor programs are given in the Graduate School Handbook (<http://gradschool.unc.edu>):

If a student does offer a formal minor, it must include at least 15 credit hours. To count for the minor, all credits must be for courses listed (or cross-listed) in programs other than that of the major. A minor may consist of a set of related courses, some of which are listed by one program and some of which are listed by another. In the latter case, at least six semester hours must be taken in each program. The minor must be approved in advance by authorized faculty in the major and the minor programs. When a satisfactory minor has been planned and approved by both programs, a copy of the proposed minor course of study shall be signed by the appropriate persons (dean, chairperson or director of graduate studies) in the major and minor programs and sent to the Graduate School to become a permanent part of the student's record.

If the dissertation involves the minor field, Graduate School policy requires the dissertation committee include at least one faculty member from the minor program.

TEACHING REQUIREMENT

The teaching experience is a requirement for students admitted into the doctoral program. The purpose of the teaching requirement is to make available to all doctoral students a learning experience in effective communication in their field of scientific work, and a tutored practice in the teaching of epidemiology. These skills and their application are part of the department's goals in the training of an epidemiologist leading to the PhD degree.

The student's advisor(s) is/are responsible for assisting in the development of a plan and timing that best fits the student's training path. The teaching experience may be paid (Teaching Assistant, or TA). For students who are not eligible to receive pay, or who choose not to, the experience may be reflected in credit hours by registering for EPID 883 (Teaching Intern, or TI).

Additional details can be found on the web at TA Central (www.sph.unc.edu/epid/ta_central_2424.html)

Roles and Responsibilities

TAs work with faculty in the preparation of course material, the preparation of the class schedule, the assembly of course-packs, and in the pre-testing of evaluation instruments. During the courses, TAs observe lectures and make themselves available to students for clarification of the concepts and terms used in those lectures; they provide consultation to students for clarification of concepts and to review the exercises used in course materials and/or textbooks; they conduct question-and-answer sessions structured around examples and exercises used in various sections of applied courses; and they make themselves available to answer questions from students in clarification sessions prior to quizzes, tests, and final examinations.

Options for Satisfying the Teaching Requirement

Most of the TA opportunities are for EPID 600, a service course for non-majors that satisfies the SPH core requirement. TAs for this course may have the option of assisting with the on-campus version or the distance-learning version. Students who have completed more advanced training may serve as TAs for EPID 700; EPID 710 or EPID 711/PUBH 760, the introductory level courses for majors; EPID 715, 718, and 722, the advanced methods courses; and EPID 726, the research proposal development course. TAs in the advanced level courses usually serve at the invitation of the primary course instructor; however, the instructors will always welcome an inquiry from students who have a strong interest in a particular course.

Other options for satisfying the teaching requirement are: BIOS 541 and BIOS 542 with Dr. Joanne Garrett (joanne_garrett@med.unc.edu), and MEDI 220 with Dr. Jeffrey Sonis (jsonis@med.unc.edu).

Training and Development

All TAs complete three types of training as a requisite for serving in a Teaching Associate role. An orientation and training session organized by the Center for Teaching and Learning serves as a general preparation on teaching techniques and the skills needed to serve as a discussion leader. An additional, and more extensive training, takes place in preparation for each course as a responsibility of the respective course instructor. A series of meetings between the course instructor and the TA(s) takes place to review the course objectives, contents, structure, and the role of the TA in each phase of the course. In this process, faculty remain attentive to the apprenticeship role of the TA(s) and provide guidance in this learning experience which allows the student to assume the role of an associate in teaching under the supervision of the course instructor. **Finally, students serving as TAs must complete FERPA (Family Educational Rights and Privacy Act) training. Go to http://regweb.unc.edu/faculty/ferpa_training.php for more information.**

Doctoral students who have acquired comparable experience in the teaching of epidemiology prior to entry into the doctoral program may request an exemption from this requirement by documenting their past experience in this respect. Requests for exemptions to the teaching requirement are submitted to the Graduate Studies Committee through the Student Services Office. A request should carry the co-signature of the student's advisor.

Doctoral students whose first language is not English may apply for an alternate, equivalent teaching experience.

DOCTORAL PRACTICUM REQUIREMENT

The field conduct of studies and related activities is an integral part of the life of an epidemiologist. Practical aspects of study conduct can include everything from designing questionnaires and subject recruitment to the collection of biologic samples and laboratory analysis. These activities are challenging and require a number of skills and experiences. Moreover, failure to properly conduct studies can waste precious resources and potentially invalidate study findings. Because students often conduct their dissertation research based on secondary analysis of data, this requirement will ensure that doctoral students in the Department of Epidemiology have been directly involved in at least two hands-on experiences in the practical conduct of studies.

Requirement Details

All students in the PhD program must demonstrate adequate practical experience in a minimum of two study implementation activities. *Adequate practical experience will be defined as a meaningful field experience, study conduct or implementation activity during one semester.* The student's advisor will assist with the selection of eligible activities, the time and effort required, and provide the final approval. The advisor is not required to supervise the actual activities. These activities can be part of the dissertation project. Pay is neither required nor prohibited.

Options for Satisfying the Practicum Requirement*

- Development and testing of study protocols
- Staff Training and Certification
- Subject Recruitment
- Questionnaire Design and Pretesting

- Interviewing
- Working with the Community to implement research
- Coding
- Medical or Other Records Abstraction
- Designing and implementing quality control activities
- Biospecimen Collection
- Laboratory Analysis
- Environmental, occupational, or personal exposure monitoring
- Collection of measurements on study participants

*Does not include activity that is part of existing course.

Format

No exemptions based on practical experience prior to entrance into the doctoral program will be allowed; the student will have to choose an activity not performed in the past.

Checkpoints: (a) Planning and scheduling of this activity with the advisor, (b) Intradepartmental Review and proposal defense. The deadline is the final defense of the dissertation.

Report of Completion

A brief (1 page) final report is to be turned in to the advisor, along with the “Verification of Completion of Practicum Requirement” form for each activity. The report should summarize the activities conducted to satisfy the requirement. Copies of both the report and the verification form are then to be submitted to the Student Services Office.

THE INTRADEPARTMENTAL REVIEW

The Intradepartmental Review (IDR) is a planning session, bringing together the student and key faculty members in his or her research area for review of the student's progress and to plan the remainder of the work. The IDR is scheduled at a time when the student has completed most or all coursework and has decided on a dissertation area (see Appendix VIII for guidelines on how to choose a topic).

Composition of the intradepartmental review committee is decided in consultation with the doctoral advisor, and consists of three members of the epidemiology faculty. A subject matter expert can be substituted for one member with departmental approval. At least one must have a primary appointment (neither adjunct nor clinical) in the Department of Epidemiology.

At least a week before the intradepartmental review the student provides each participant with the following (in no particular format):

- An updated C.V.
- Information on progress to date, including courses completed, research activities, etc.
- A summary or outline of the proposed dissertation project.
- IRB Training Certificate
- Practicum Requirement verification (if complete)
- An item-by-item description of the degree to which the student has met each of the doctoral learning competencies (as listed in Academic Policies on page 31) and those of the program area, if applicable.



A copy of this packet must also be filed with the Student Services Office.

The student must obtain from the Student Services Office the Intradepartmental Review form or through the Departmental web site. The form will be completed by the Committee Chairperson during IDR. During the session the student and committee plan the training needs and opportunities best suited to the doctoral research identified by the student. The student is responsible for giving a copy of the signed checklist to each member of the IDR committee and filing a copy with the Student Services Office.

PRELIMINARY DOCTORAL WRITTEN EXAMINATION: THE DOCTORAL QUALIFYING EXAM

Preliminary Doctoral Examinations in the Department of Epidemiology are designed in accordance with Graduate School requirements for a written and an oral examination, together constituting a comprehensive examination of the student's command of his or her field. The student must be registered at the time the preliminary examinations are taken. The examinations are covered by the Honor Code.

Purpose

The written examination is the Doctoral Qualifying Examination. It is a diagnostic tool designed to indicate to the Department whether the student has the substantive knowledge and the methodologic skills to engage in doctoral research and proceed in the doctoral program. The purpose of the examination is to yield diagnostic information on the student's command of several skills and competencies considered necessary for doctoral research.

Content and Structure of the Qualifying Examination

The Doctoral Qualifying Examination is administered in two independently graded portions. The methods component is a standardized test of proficiencies in applying epidemiologic methods at the level of EPID 715/718. The substantive component consists of topical questions related to the program area declared by the student, prepared (and graded) by a committee established by the program area leader. The two components of the Qualifying Examination can be taken independently, but students need to pass both parts prior to the preliminary oral examination. An outline of each part of the Doctoral Qualifying Examination follows.

The **methods component** of the Doctoral Qualifying Examination consists of written responses to questions designed to test the student's ability to apply the concepts and methods covered in the required epidemiology and biostatistics courses (exclusive of EPID 722). It is administered as an in-class examination, and questions may call for short essay answers; computations and set up of computations; interpretation of software output; construction, analysis and interpretation of results in tabular form; and analysis of data provided.

The **substantive component** of the Doctoral Qualifying Examination consists of written responses to questions designed to assess the student's command of the topical/programmatic area declared for the intended doctoral research. It is administered as an in-class, closed book examination. Program areas are those defined by the Department of Epidemiology as providing training in a substantive/topical area. The objectives of the substantive portion of the examination are to ascertain:

- (1) the degree of sophistication of the student's knowledge base in the study area,
- (2) his/her awareness of a salient area of research, reflecting familiarity with the current literature,
- (3) the student's ability to apply epidemiologic methods to a topical issue in the study area, and
- (4) the student's ability to identify and discuss the public health implications of a topical issue in the area selected for the proposed doctoral research.

Expected Competencies

To achieve a “pass” level on the Doctoral Qualifying Examination students must demonstrate (a) mastery of and the ability to apply the epidemiologic concepts and methods covered by the core methods curriculum, and (b) a command of the knowledge base, topical issues, and public health applications in the substantive area selected for the proposed doctoral research.

Planning

In the course of a student's Intradepartmental Review (IDR) a time line is identified for the optimal time to take each part of the Doctoral Qualifying Examination, if not already taken.

Students prepare for the **methods component** of the examination by reviewing the pertinent course materials and publications cited in the course materials, textbooks, and by reviewing the past examinations made available by the Office of Student Services. At the discretion of the examining committee, additional guidelines *may be* provided prior to the exam.

To assist students in preparing for the **substantive component** of the Doctoral Qualifying Examination program areas are responsible for providing a “study guide” for students, to include the learning objectives of the program area and recommended readings for developing the minimally necessary expertise in the area (*not* selected solely for the purpose of addressing specific exam questions).

Timing

Given the qualifying nature of this examination, the Doctoral Qualifying Examination should be taken before work on doctoral research is begun. The Methods and Substantive components must be completed satisfactorily for a student to continue in the doctoral program.

The methods component of the qualifying exam will be offered on January 8 (registration deadline December 7, 4:30 pm) for the 2007-08 academic year. It should be taken after completion of EPID 718. The student is required to consult with the advisor before registering for the methods component of the doctoral qualifying examination, to confirm the student’s readiness to take the examination at that time.

The substantive component of the Doctoral Qualifying Examination is offered during the Fall or Spring semester, as scheduled below. Special interest area examinations (i.e., genetic, social, etc.) are also to be scheduled on the dates shown below. For the 2007-2008 academic year, the exams are scheduled as follows:

Program Area	Program Area Director	Date of Exam	Last Day to Register for Exam
Cancer	Andy Olshan	September 27, 2007	August 27, 2007
Cardiovascular Disease	Gerardo Heiss	September 27, 2007	August 27, 2007
Reproductive	Anna Maria Siega-Riz	May 9, 2008	April 9, 2008
Environmental/Occupational	Marilie Gammon	May 9, 2008	April 9, 2008
Infectious Diseases	Steve Meshnick	May 9, 2008	April 9, 2008
Injury	Steve Marshall	May 9, 2008	April 9, 2008
Health Care (including pharmacoepidemiology)	Bill Miller	May 9, 2008	April 9, 2008

The program area director will make study guidelines available through the Student Services Office no later than three months prior to the date of the examination.

The substantive component of the Qualifying Examination should be taken after a student has selected a topical/programmatic area for the doctoral research and has completed the relevant courses defined in the learning objectives of each program area, but can be taken before the methods component. The student's advisor should be actively engaged in the student's decision about when to take the substantive component. However, no documentation of completed requisites is needed for a student to register for the substantive component of the Doctoral Qualifying Examination.

For either component, a student may terminate the exam prior to submission with no penalty.

Administration

The **methods component** of the Doctoral Qualifying Examination is prepared by the Doctoral Qualifying Examination Committee of the Graduate Studies Committee, drawing on other faculty as needed. For each examination a committee of three faculty is established, with responsibility for developing, testing, and grading the examination. The committee includes at least one member of the GSC.

For the **substantive component** of the Doctoral Qualifying Examination the program area director forms a committee consisting of three faculty members, at least one of whom will have a primary appointment in the Department of Epidemiology. Inclusion of adjunct faculty of the Department is permissible and desirable. The program area director is responsible for providing study guidelines in advance.

To be examined in areas that are not established program areas, the student must file a request through the Student Services Office justifying the need for a "special interest" examination. If approved by the Graduate Studies Committee, the student's advisor will form an *ad hoc* examining committee. At least one of these must have a primary appointment in the Department of Epidemiology. *The advisor plays an important role in selecting the questions, but does not take part in grading.* However, to aid in standardization of the examination across program areas, special interest area questions require prior approval of the Graduate Studies Committee.

This *ad hoc* committee does not constitute a dissertation committee - since approval of both parts of the Qualifying Examination is a requisite for setting up a doctoral committee - but it can serve as the core around which the dissertation committee is subsequently established. The *ad hoc* committee is responsible for grading its questions and for providing diagnostic feed-back to the student. The latter is channeled through the Doctoral Qualifying Examination committee of the Graduate Studies Committee and the Office of Student Services.

Format

The methods component is an in-class exam, designed to be completed within a four hour time period. However, a total of six hours will be allowed. Students must bring a pocket calculator and may bring only the following written material: Rothman KJ, Greenland S. *Modern Epidemiology*. Second edition. Philadelphia: Lippincott Williams & Wilkins, 1998.

The substantive component of the Doctoral Qualifying Examination is administered as an in-class, closed book examination. Page limits are defined for each question, and the full examination is designed to be answered in three to five hours. The time limit for this part of the Doctoral Qualifying Examination is six hours. Two pages of notes (personally prepared, one piece of paper, two sides) of the student's choice, a foreign language dictionary, and a calculator are allowed.

In each component of the Qualifying Examination the student will be given three questions to answer. The examining committee may: (1) ask the student to choose two of the three; (2) require the student to answer all three and the best two grades will be submitted; or (3) specify for the student one question to answer and allow the student to choose which of the two remaining questions to answer.

Submission of an exam is final. Students should review their exams carefully prior to submitting it to the Student Services Office.

Copies of past exams and answer keys are on file in the Student Services office.

Grading

As a whole, the Doctoral Qualifying Examination is assessed on a pass/fail basis. An overall grade of Pass requires a Pass on both the methods and substantive components. For the methods component, the possible grades are Pass, Fail, or Conditional Pass. The substantive component is assessed simply as Pass or Fail. Each question is graded by one member of the examining Committee. If the grade is not an unequivocal Pass, the question is graded by another member of the committee. If they disagree on the grade, the graders confer to reach a consensus.

A grade of Conditional Pass (*methods component only*) requires the examining committee to develop a written, explicit statement of the additional work that the student must complete satisfactorily to convert the Conditional Pass into a passing grade and the criteria by which the work will be judged. Such work may include one or more of the following: re-take of portions of the original exam, enroll in a relevant course(s), lab work, field work, etc. If the additional work does not meet the committee's expectations or the work is not turned in by the specified deadline, the Conditional Pass converts to a failure. If the additional work performed by the student is approved by the examining committee, a final grade of Pass is reported.

See Appendix IX for a detailed description of the grading scheme for the methods component and Appendix X for the substantive component.

Report of Outcome

Within 3 weeks of the examination (either part), notification of the outcome is communicated to the student by the Doctoral Qualifying Examination Committee of the Graduate Studies Committee. A set of comments from the graders and/or an annotated copy of the exam may be provided at that time. If the grade is a Conditional Pass, recommendations for corrective actions for any weaknesses noted are provided to the student within one week of notification of outcome, not to exceed one month from the date of administration of the examination. Grading and preparation of the comments are a responsibility of the student's examining committee. The comments are reviewed by the Doctoral Qualifying Examination Committee of the Graduate Studies Committee, prior to notification to the student. In the event that the grading deadlines cannot be met by the examining committee, the committee must, by those deadlines, inform the student of the expected completion date.

A grade of Fail requires that the student consult with the advisor and conduct an in-depth review of diagnostic information related to the student's performance. Feedback provided by the Doctoral Qualifying Examination Committee should be considered in this review. The student has the option to re-take the pertinent portion of the Doctoral Qualifying Examination, which has to be passed the next time it is offered in order to remain in the doctoral program, unless a different timing is recommended by the Graduate Studies Committee.

Appeal of Failure

A failing report from either part of the Qualifying Examination can be appealed. An appeal of a failing report is heard by the Qualifying Examination Committee, based exclusively on the student's performance on the pertinent portion of the Doctoral Qualifying Examination. An appeal must be brought within 10 working days from the date of delivery of the critique by the graders, unless there are compelling reasons for delay (requires prior approval by the Chair of the Qualifying Exam Committee). Appeals must be made in writing and should

be presented in such a way that the appeal can be considered without revealing the identity of the student involved. **Appeals are submitted directly to the Student Services Offices.** Other than references to standard textbooks or examination materials the appeal should contain all the pertinent information; appendices or accompanying documents are not permitted. It is requested that a student intending to appeal notify the Student Services Office as soon as possible to facilitate scheduling of a Qualifying Examination Committee meeting. Such notice does not obligate the student to make an appeal.



Students are expected to decide on their own whether to appeal an examination outcome. The comments from Qualifying Examination graders should be considered in making this decision. The examination should not be discussed with the advisor and/or faculty members before an appeal, nor should faculty offer an opinion on whether to appeal an examination result. In preparing an appeal students should neither solicit nor receive assistance.

Appeals are subject to all terms of the Honor Code, so that the appeal must be the student's own work and be accompanied by a signed pledge. The pledge will be separated from the appeal itself and retained in the Student Services Office.

The Qualifying Examination Committee (in consultation with a substantive area expert, if necessary) will decide the appeal without knowledge of the student's identity. To preserve anonymity, all communication between the student and the Committee will take place through the Student Services Office until the appeal has been decided. The Committee will render its decision within 10 working days after the appeal is received, or as soon thereafter as a quorum of the Committee is available.

The Committee decision is final with respect to the substantive issues. The appellant may appeal to the Department Chairperson only on grounds of alleged irregularities in procedure.

THE DISSERTATION COMMITTEE

The Dissertation Committee is established after both components of the doctoral qualifying exam have been passed. The Dissertation Committee is composed of five or more members, a majority of whom must be regular members of the University of North Carolina Graduate School Faculty. All tenured and tenure track faculty at the ranks of assistant, associate and full professor are automatically members of the Graduate Faculty (this includes tenure track faculty School of Medicine, School of Pharmacy, other SPH Departments, etc.). Per Graduate School guidelines, "other persons may be appointed to the Graduate Faculty for fixed term membership; these appointees may include: faculty emeriti, clinical or research professors, scholars from other institutions, independent scholars, and practitioners." Confirmation of any individual's status can be obtained through the Student Services Office.

At least three committee members must be faculty of the Department of Epidemiology (this would include research track faculty and those with adjunct appointments). Research track faculty, adjunct faculty, and committee members from outside the UNC-CH system will need to email to epidemiology@unc.edu an electronic copy of their current CV so that they can be given a fixed-term appointment with the Graduate School for the purpose of serving on committees. **Committee members from outside the UNC-CH system DO NOT have to be given adjunct appointments to serve on a student's committee.** The role of the Committee Chairperson is to follow the student's progress throughout the dissertation process and to ensure that all departmental policies and expectations are adhered to. For this reason, the Committee Chairperson must be someone whose primary appointment is in the Department of Epidemiology.

The Committee should also include a biostatistician or someone who can function in that capacity. Inclusion of members from outside the department is encouraged when their point of view is warranted by the research

question. Such members may be drawn from any of the disciplines bearing on the study of the distribution and determinants of human health and disease.

Committee members are proposed by the student and approved by the dissertation advisor using the “Request for Doctoral Dissertation Committee Approval” form. The student submits this form to the Student Services Office for departmental approval. The Student Services Office then completes and submits the Graduate School’s “Report of Doctoral Committee Composition” form. **The Committee must be constituted prior to the Preliminary Oral Examination.**

THE PRELIMINARY ORAL EXAMINATION

The Preliminary Oral Examination is the second of the preliminary doctoral examinations. It is held after the Qualifying Examination has been passed, at a time when the student's dissertation committee determines that the dissertation proposal has reached a suitable stage, and in accord with Graduate School regulations. The Graduate School policy requires that by the time of the second preliminary examination the student must have fulfilled all required coursework and the minimum residence requirements for the doctorate, or will fulfill these by the end of the semester in which the examination is taken. A student must be registered at the time of the preliminary oral examination.

The purpose of the preliminary oral examination is to review a structured proposal of the student’s doctoral research that includes its objectives, hypotheses, and work plan, submitted for formal approval by the doctoral dissertation committee. The content and format of the dissertation proposal is defined by the student and the doctoral advisor/doctoral committee chair at an early stage of this process. At a minimum, the doctoral research proposal includes a comprehensive statement of the background and critical assessment of the literature, a statement of objectives and their rationale, the study hypothesis(es) and design, and a proposal plan of analysis. Formal approval of the dissertation proposal and pertinent supporting materials by the doctoral committee takes place during the oral examination. [Sample proposals are available in the Epidemiology Student Room.]

The preliminary doctoral examination includes a presentation by the student of the proposed doctoral research. Discussion of the proposal during the preliminary doctoral examination is not constrained by the contents of the proposal. Members of the doctoral committee are free to pose questions on any substantive or methodologic subject related to the proposed doctoral work, a minor program, or aspects of another program or curriculum which is transferred into the candidate’s doctoral program.

Also during this examination, the committee should review and discuss manuscript authorship issues with the student.

The student should submit a draft of the proposal to each committee member well in advance of the date planned for the examination, to allow time for review and comment. The committee must approve the proposal before the student may proceed with the doctoral research. After the approval of the proposed research, the “Report of Approval of Dissertation Project” and the “Report of Oral Examination” are signed by committee members. These forms are obtained from the Student Services Office and should be returned after the examination.

Following the oral examination the student must submit a tentative schedule for completion of the dissertation to each committee member. A copy should be filed with the Student Services Office.

RESEARCH AREA QUESTIONS

Significant weaknesses in the dissertation proposal or in the level of preparation of the candidate may result in a failed examination, which can be repeated as defined in the Graduate School Handbook. If the deficiencies are less severe and lead the doctoral committee to require supplementary or remedial work, written questions can be

identified during the preliminary doctoral examination for completion by the candidate on a pre-established timeline (including a review procedure by Chair and Committee). These research area questions are not part of the preliminary examinations, but serve as a means to clarify or amplify specific issues identified during the oral examination. Any such questions are considered part of the student's program, and must be completed before the student applies for candidacy for the degree.

ADMISSION TO CANDIDACY

Admission to candidacy for the doctorate is a certification that the student has completed all requirements for the degree except for the dissertation and/or defense. This is an optional form, completed only if the student needs to establish official candidacy.

A doctoral student may apply for candidacy at any time after all requirements have been met, but no later than the application to graduate deadline (gradschool.unc.edu/graddeadlines.html). The student must have completed all course work required by the program and the dissertation committee, completed all minor program requirements if a minor has been declared, passed both the doctoral oral and written examinations, submitted an acceptable dissertation proposal, and completed research area questions if these have been assigned by the dissertation committee. Doctoral candidacy forms are available in the Student Services Office or online at the Graduate School's web site.

THE DOCTORAL DISSERTATION

According to Graduate School policy, the doctoral dissertation "is expected to be of such scope, independence, and skillful presentation as to indicate that the candidate has acquired a command of the subject, has the demonstrated ability to contribute fresh knowledge or a fresh outlook to the subject, and has mastered the research methodology of the discipline."

The student is expected to consult with members of the dissertation committee at frequent intervals throughout the progress of the research, and is **required under Graduate School policy to submit a progress report to each member of the committee at least once a year**. More frequent reporting is desirable, and may be specified by an individual committee.

The Graduate School requirements for dissertation format are specified in the publication, [A Guide to the Preparation and Submission of Theses and Dissertations](#). This booklet is available from the Epidemiology student office, or directly from the Graduate School, second floor of Bynum Hall.

Human Subjects Review

EVERY student must complete training in the protection of human research subjects. The website for this training is <https://www.citiprogram.org/default.asp>. Students should select training in either Group 1 or Group 2. Group 3 does not suffice. No other human subjects training can substitute for this requirement. Students may obtain a copy of their training verification online at http://cfx3.research.unc.edu/training_comp/.

ALL proposed doctoral research must be submitted to the School of Public Health Institutional Review Board. This applies to all proposals, whether sponsored or not sponsored. Submitting a "determination form" (Determination Whether Research or Similar Activities Require IRB Approval, found at ohre.unc.edu/forms.php) is sometimes sufficient. Prior IRB approval for the sponsoring research project, the Principal Investigator or the academic advisor does not substitute as IRB approval for the student's own academic work. Meetings of the Review Board are held at approximately one-month intervals. Applications for review should be submitted on IRB forms at least two weeks in advance of the expected date of review (Refer to Appendix V). Students should consult with their advisors in preparing IRB applications. **Upon receipt of**

IRB approval, the student must complete the Verification of Compliance with Institutional Review Board Requirements form. A copy of the IRB committee's decision must be attached to the form.

The Co-Chairs of the Public Health IRB are Professors Trude Bennett, Ruth Humphry and Mary Lynn. The Board Administrator is Ms. Barbara Griese. Inquiries and requests for forms, status of application and other questions should be routed through her. She may be reached at 966-9347, or by email at griese@email.unc.edu. See web site at <http://ohre.unc.edu>.

Data Use Agreements

If using data that is not publicly available, the IRB Committee requires a data use agreement form. This form is available from the Student Services Office or online through the Department's web site. This form should be submitted to the study's Principal Investigator.

Standards and Expectations for Doctoral Research in the Department of Epidemiology

The research question for a dissertation in Epidemiology can be substantive, methodologic, or theoretical. In any case, it should have a demonstrable potential for advancing the state of knowledge or practice. Standards for an adequate doctoral dissertation are expressed by expectations for a high level of achievement in the following areas:

1. **Originality** is expected in doctoral research. It may be achieved through innovation in theory, methods or substantive content, or by creative application of existing theory or knowledge to a new problem. Research that replicates findings of others without this kind of innovation, while often a worthwhile contribution, is not sufficiently original to satisfy the expectations for the dissertation.
2. **Depth** in the definition and treatment of the research topic is a requirement for doctoral-level research. It implies both technical competence and intellectual sophistication. Depth is to be gauged by the doctoral committee against standards of work publishable in peer-reviewed communications.
3. **Scholarship**. The dissertation should be competent in scholarship, as well as in scientific technique. The problem should be introduced, the study justified, and the results discussed in such a way as to place the work in its academic context. That is, the dissertation should demonstrate familiarity with the work of others, awareness of important developments and controversies, and an ability to critically synthesize and convey such knowledge.
4. **Writing Skills**. Competence in scientific writing is among the evaluation criteria for the doctoral dissertation.

Publication Requirement

The program leading to the Doctor of Philosophy in the Department of Epidemiology is research oriented, and the candidate's doctoral research is expected to make a scientifically meaningful contribution to methodology and/or substantive knowledge. Peer review in assessing whether these standards have been met is the responsibility of the doctoral committee, acting in the capacity of an internal review body.

Peer reviewed communication of research findings is both a yardstick by which the merit of scientific work is measured, and a mandate for scientists in the field of public health. The acquisition of the skills that will enable a scientist to implement these expectations should be an integral part of the doctoral training in epidemiology.

A mentored application of new skills is the preferred and most effective mode of learning, and is applied to as many components of the doctoral training in the department of Epidemiology as is feasible. The publication of

research findings, and encountering external peer review should be first experienced in the didactic and supportive environment of a training program. Postponing these experiences until after graduation can be a significant hurdle to career development.

Implementation

As part of the doctoral research proposal approved by the doctoral committee, a minimum of two manuscripts intended for publication must be proposed. The choice of topics and an outline of the scope of the manuscripts are prepared with input from the doctoral advisor, and are approved by the doctoral committee.

The doctoral committee, or the doctoral advisor and at least one member of the doctoral committee, serve as an internal peer review group for the final drafts of these manuscripts.

Completion of the doctoral program requires that one manuscript be submitted to an external peer review mechanism approved by the doctoral advisor. Unless an exception is requested by the doctoral advisor, the default external peer review mechanisms are either a scientific journal or a publication/ scientific peer review group established by a parent study that has sponsored the doctoral research. Verification of submission is required at the time of the final defense by completing the “Verification of Submission of Dissertation Manuscripts” form. Review of the manuscript by a co-author who is not a member of the doctoral committee does not substitute for external peer review.

Neither completion of peer review by a journal nor acceptance for publication is required prior to scheduling the doctoral defense. Timely submission of manuscripts resulting from the doctoral research process is encouraged, to give the candidate an opportunity to receive external peer review comments and to experience the interaction with external peers and journal editors. Rejection of a manuscript by a journal (or equivalent external peer-review process) does not preclude a successful completion of the doctoral program. Conflicts that may emerge between recommendations from external peer reviewers and the doctoral committee are resolved by the doctoral committee, according to the academic requirements of the doctoral program. The doctoral committee is the only, and final arbiter of the acceptability of the doctoral dissertation.

If doctoral research is proposed that does not lend itself to publication according to the process outlined above, an alternative pathway to publication needs to be approved at the time of the Preliminary Oral Doctoral Examination, in order to provide an equivalent learning opportunity to this student. If in the opinion of the doctoral committee the analytic results of the doctoral research do not merit publication, this committee develops an alternative to meet the expectations of the doctoral program and to make available to the student the experience of the publication process.

Authorship Expectations from Doctoral Research

The doctoral candidate is expected to assume the role of lead investigator for his/her doctoral research, exercising these responsibilities and decision-making prerogatives with guidance from the dissertation committee Chair. Consistent with this role, the doctoral student is expected to serve as lead author on publications that originate from doctoral research, unless an alternative is stipulated at the time of the doctoral dissertation proposal defense as required by access to data or resources. Under these circumstances, the student’s record should indicate in writing his/her agreement with the data use specifications as well as the advisor’s endorsement. Service on the doctoral committee does not confer authorship to faculty; contributions to a publication that deserve authorship recognition should be measured individually. Authorship recommendations from the scientific editors of the major health sciences journals serve as the guidelines for this process, as summarized in JAMA 1993; 269:2282-2286 and the instructions to authors provided by the major journals.

Assuming lead authorship responsibility and its roles is part of the career development competencies acquired as part of the doctoral training. The doctoral advisor is responsible for assisting the candidate in negotiating authorship issues, particularly in the case of multi-site collaborations, and for studies that have established publication and authorship policies. Guidelines to assist in this process are found in JAMA 1997; 278:579-85, and others.

If the doctoral research is conducted in collaboration with another institution, scientist(s) or agency supplying the data, negotiations should take place early in the planning of the doctoral research and no later than at the time of the defense of the doctoral dissertation proposal. Expectations of authorship for all publications resulting from the doctoral work should be made explicit as part of such negotiations. Such negotiations should include the student, the doctoral advisor, and the collaborating scientist(s). A written confirmation or understanding of the agreement should follow these negotiations. (Refer to Appendix XI for publication practices.)

It is recommended (not required) that the doctoral advisor and at least one member of the doctoral committee be willing to assume co-author roles on each of the two manuscripts, to guarantee full involvement and timely critical input.

Format of the Dissertation

The traditional dissertation format is a single document with no page limit. Despite its greater length, less careful and time-consuming editing is typically required than for journal publication. However, it has the disadvantages of being time-consuming to read and difficult to reduce to publishable proportions. In the preferred format, often referred to as a “manuscript dissertation,” the results chapters are prepared as manuscripts ready to be submitted for external peer review. This collection of related manuscripts is preceded by two or three chapters that present a unified review of the literature, the study questions, their rationale, the corresponding hypotheses, and the general methods common to the results chapters/manuscripts. Although each manuscript has its own discussion section, a common discussion is included as the last chapter of this type of dissertation. This format is attractive in many ways, and is encouraged. Although more demanding in the writing stage, the use of this format will result in a shorter, more readable dissertation, and more importantly, it leads more quickly to its submission for publication.

The “manuscript dissertation” is strongly recommended by the Department and is used almost without exception. A minimum of two manuscripts must be prepared by the student, in collaboration with members of the doctoral committee in supporting roles. These manuscripts must be of a quality sufficient to have the potential to be published in a first rate, peer-reviewed journal. *Even if a monograph style is chosen as the format for the dissertation, a minimum of two manuscripts must be prepared by the student, one of which needs to be submitted for external review prior to the defense.*

While the actual manuscripts are formatted as stand-alone documents ready to be submitted for external peer review, for the purpose of the dissertation they must be integrated into a coherent document that meaningfully links these manuscripts to the aims of the doctoral research. Thus the complete doctoral dissertation document includes the following elements (all but an introduction are required).

1. Abstract
2. Introduction
3. Critical review of the literature
4. Specific aims or statement of the study questions, and their rationale
5. Hypotheses to be tested
6. Study design, population, measurements/instruments, quality assurance
7. Analytic approach
8. Results (manuscripts)

9. Overall discussion and interpretation of findings (with reference to overall aims of the doctoral research)

See XII for a sample Table of Contents for a dissertation. For details on table of contents, pagination, typeface, etc., consult the Graduate School's Guide to Theses and Dissertations (gradschool.unc.edu).

Data Source

The source of data or study material for dissertation research is determined by the study question. Primary data collection and secondary analysis of existing data may be acceptable, as determined in collaboration with the advisor.

Breadth

Innovation rather than breadth is a requirement for the dissertation research question. The dissertation may be narrowly focused on a specific problem, if it has the potential to advance the state of the science in a substantive, methodologic, or public health area. However, consideration of the wider implications of the research question and results in the Introduction and Discussion portions of the dissertation is expected.

Time Line and Interaction with the Doctoral Committee

1. Preparing a doctoral dissertation requires at least three meetings between the student and the full doctoral committee in the following sequence:
 - i. Preliminary oral examination (defense of the doctoral research proposal).
 - ii. **At least one interim meeting, held a minimum of four months prior to final defense (preferably earlier, e.g. six months prior to date of final defense). The "Documentation of Interim Doctoral Committee Meeting and Dissertation Close-out Schedule" is submitted to the Student Services Office. If deemed unnecessary by the committee chair and neither the student nor a member of the doctoral committee requests a meeting, this meeting can be bypassed. Both the student and the committee chairperson must sign the form, indicating waiver of the meeting.**
 - iii. Final doctoral defense.

The preliminary oral examination and the final doctoral defense are addressed elsewhere in this document. The purpose of the interim meeting is to provide an opportunity for the student to obtain direct consultation with the entire committee prior to completion of the doctoral research process and the dissertation. Issues to be addressed in the interim meeting include reaching consensus on the scope, completeness, and time line of the dissertation, clarifying outstanding issues of analysis and interpretation, and to set up a dissertation close-out schedule. At that time, the Chair of the doctoral committee also asks each committee member to identify any concerns regarding the status of the doctoral research. With input from the full committee, the Chair prepares a listing of the items the student needs to address prior to the final defense.

2. Notification of final defense.

The dissertation close-out schedule, signed by the advisor and the student, constitutes the notification of final defense, and is filed with the Student Services Office.

The student submits the final dissertation document to the committee at least two months prior to the final defense. Failure to meet this timeline requires re-scheduling of the doctoral defense. The student contacts each member of the committee at that point to establish a schedule that allows (a) time for each committee member to

read the dissertation, (b) time for the student to meet with each committee member if needed, and (c) an opportunity for the student and advisor to rehearse the defense presentation.

3. Responsibilities of the Committee Members

The student must provide adjuncts or committee members from other departments with a copy of the departmental policies and recommendations (available from Student Services Office). At the preliminary oral examination, the committee Chair will review the process described above, the roles and expectations, and the time line. The student is then authorized to proceed with the proposed doctoral research.

Submission of Doctoral Dissertations

The policy adopted by the Epidemiology faculty for submission of the dissertation follows:



The written dissertation document must be in final form prior to the final defense. This implies that all pages, references, and appendices are in place and that a thoughtful discussion has been completed. The dissertation will have been thoroughly proofread and editorial problems corrected. It is expected that following the defense, substantive changes in the written document will be minimal. Any subsequent retyping should at most involve a few pages so that the student would not be put to undue expense. This being the expectation of the student, the implication is that each committee member will have reviewed thoroughly the entire finalized document well in advance of the defense.

APPLICATION FOR GRADUATION

The student must apply for the degree for a specific graduation term by the Graduate School deadline. **Degree application forms and deadlines can be found at <http://gradschool.unc.edu/graddeadlines.html>.** The Graduate School can make no exceptions to this deadline. If a student fails to graduate in the term applied for, they must re-apply; no prior application will suffice.

THE FINAL DEFENSE OF THE DISSERTATION

The Final Defense (the final doctoral oral examination) is a formal requirement of the Graduate School. **The student must be registered at the time it is held, and all committee members are required to be in attendance.** Once a date and time have been agreed upon by the student and committee members, the student should notify the Student Services Office so that a room can be arranged for and an announcement of the defense posted. **The defense must be announced via the Epidsems distribution list (epidsems@unc.edu) at least one week in advance.** The announcement should include student name, title of presentation, indication that this is a doctoral defense, name of advisor, date, time, and location. Program areas are encouraged to issue specific invitations to colleagues outside the department, citing the paper titles.

To reserve the EPID conference room, email Chandra at ccaldwel@email.unc.edu . To reserve a room in the SPH, go to http://www.sph.unc.edu/iis/room_reservations_660_3696.html
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The final defense includes a presentation of the results of the doctoral research to the doctoral committee, other faculty, and students. This is followed by discussion and criticism of the scientific work presented and the final written document.

The first portion of the Final Defense is open, and is announced several days in advance. The candidate presents the research, and a general discussion period follows. Following this open meeting, the student and Committee meet in closed session for a final examination of the work. The final results are reported to the Graduate School after all committee members have signed the “Report of the Final Oral Examination” obtained from the Student

Services Office. **The Chair of the dissertation committee should not sign this document until the dissertation is in final form. This form will not be submitted to the Graduate School until all corrections/modifications to the final document have been completed.**

SUBMISSION OF THE DISSERTATION TO THE GRADUATE SCHOOL

The student should consult [A Guide to the Preparation and Submission of Theses and Dissertations](#) for information on preparation of the dissertation for submission to the Graduate School. These guidelines should be strictly adhered to, as failure to do so will result in rejection of the final product by the Graduate School. Dissertations may now be submitted to The Graduate School in electronic format. Refer to The Graduate School website (<http://gradschool.unc.edu/etd/>) for specific details.

RESEARCH PROGRAM AREA LEARNING OBJECTIVES

Each major program area has established guidelines to ensure that the curriculum successfully addresses those issues that are specific to that area of research. This includes identification of learning objectives, methods for satisfying those learning objectives and monitoring of evidence of achievement of the learning objectives. Appendix XIII includes current objectives for the following program areas: cancer, cardiovascular disease, environmental/occupational, injury, health care and pharmacoepidemiology, infectious diseases, and reproductive epidemiology. The learning objectives can also be found online at: http://www.sph.unc.edu/epid/program_guidelines_199_564.html

APPENDIX I

DEPARTMENTALLY "OWNED AND OPERATED" E-MAIL MAILING LISTS			
LISTNAME/ PURPOSE	TO SUBSCRIBE, SEND E-MAIL TO THE ADDRESS BELOW...	...WITH THE MESSAGE	TO SEND E-MAIL TO PEOPLE SUBSCRIBED TO THE LIST
EPIDADJ (Global distribution of messages to all local adjunct and clinical Epid faculty)	Contact Lesa McPherson (lesa_mcperson@unc.edu)		epidadj@unc.edu
EPIDADJDISTANT (Global distribution of messages to all distant adjunct and clinical Epid faculty)	Contact Lesa McPherson (lesa_mcperson@unc.edu)		epidadjdistant@unc.edu
EPIDFACULTY (Global distribution of messages to all Epid faculty)	Contact Lesa McPherson (lesa_mcperson@unc.edu)		epidfaculty@unc.edu
EPIDPOSTDOCS (Global distribution of messages to all Epid postdocs)	Contact Lesa McPherson (lesa_mcperson@unc.edu)		epidpostdocs@unc.edu
EPIDSTAFF (Global distribution of messages to all Epid staff)	Contact Lesa McPherson (lesa_mcperson@unc.edu)		epidstaff@unc.edu
EPIDSTUDENTS (Global distribution of messages to all Epid students)	listserv@unc.edu	subscribe epidstudents yourfirstname yourlastname	epidstudents@unc.edu
EPIDALL (Combines epidfaculty, epidstudents, epidstaff, and epidpostdocs)	N/A	N/A	epidall@unc.edu
EPIDSEMS (To announce upcoming Epid department seminars, doctoral dissertation defenses, master's paper presentations, etc)	listserv@unc.edu	subscribe epidsems yourfirstname yourlastname	epidsems@unc.edu
EPIDJOBS (To assist current Epid students in learning about research assistant and teaching assistant positions)	listserv@unc.edu	subscribe epidjobs yourfirstname yourlastname	epidjobs@unc.edu
EPIDSOCIAL (For non-academic matters of potential interest to students. Students must enroll themselves)	listserv@unc.edu	subscribe epidsocial yourfirstname yourlastname	epidsocial@unc.edu

APPENDIX II

SAMPLE SCHEDULE FOR 2-YEAR MASTERS PROGRAM

(assumes full-time enrollment of 9 or more hours per semester)

FALL	
Course #	# Credits
EPID 705	2
EPID 710 (EPID 711)	4 (3)
BIOS 600	3
Substantive EPID course or SPH core elective	3
EPID 700 (SAS)	3

SPRING	
Course #	# Credits
EPID 715	5
BIOS 545	3
Substantive EPID course or SPH core elective	3

FALL	
Course #	# Credits
EPID 718	3
Substantive EPID course or SPH core elective	3
EPID 900	4

SPRING	
Course #	# Credits
EPID 992	3
Substantive EPID course and/or SPH core electives	6

Summer registration is not routinely required by the department. However, certain types of funding may require that the student continue as a formally enrolled student throughout the summer terms.

SAMPLE SCHEDULE FOR 18-MONTH MPH PROGRAM

(assumes full-time enrollment of 9 or more hours per semester)

FALL	
Course #	# Credits
EPID 705	2
EPID 710 (EPID 711)	4 (3)
BIOS 600	3
EPID 700 (SAS)	3
Substantive EPID course	3
SPH core elective	3

SPRING	
Course #	# Credits
EPID 715	5
BIOS 545	3
Substantive EPID course	3
SPH core elective	3
SPH core elective	3

FALL	
Course #	# Credits
EPID 718	3
EPID 900	4
EPID 992	3

APPENDIX III

Recurring "Generic" Questions In The Masters Examination

All questions should be answered using information in the article or first year coursework. Unless otherwise stated, answers are expected to be 2-4 sentences in length.

1. State the primary research question or conceptual hypothesis and briefly summarize its rationale (i.e., what the question is and why it is appropriate and important to study).
2. Identify the study design (i.e., case-control, cohort, cross-sectional, randomized trial, etc.) and justify your choice.
3. How appropriate is the design of this study for addressing the research question?
4. Evaluate the suitability of the study population for addressing the research question with regard to:
 - a. Validity and feasibility (i.e., what are strengths and limitations of this particular investigation)
 - b. Generalizability (i.e., what are strengths and limitations for generalizing to other populations)
5. What evidence do the investigators provide that the number of subjects was adequate to address the study hypothesis?
6. How do the authors define the exposure variable/study factor in the present study? How well does their method of measurement succeed in operationalizing this definition? (You do not need to address biochemical or laboratory issues here.)
7. How do the authors define the disease/outcome variable in the present study? How well does their method of measurement succeed in operationalizing this definition?
8. Briefly describe quality control features of the study and comment on their adequacy.
9. Identify the primary measure of effect (e.g., risk ratio, odds ratio, incidence density ratio) used for testing the hypothesis, state its definition in words, and give its algebraic formulation.
10. Calculate an OR (RR) for specific strata within the study population.
11. Calculate a confidence interval and give an interpretation as to the magnitude and precision of effect.
12. Briefly assess the appropriateness of using the primary measure of effect for this study question and data; give the arguments for and against using this measure.
13. Briefly discuss the adequacy of the procedure for assessing the statistical evidence for a crude association (refer, as appropriate, to such issues as level of measurement of the variables, appropriate use of statistical hypothesis tests or confidence intervals, significance level, impact of violation of assumptions, etc.).
14. How did the investigators control for confounding in this study?

15. Assess the adequacy of control for confounding in the assessment of the primary relationship, considering the state of knowledge in the field as reflected in the article.
16. Is effect modification important in this study? Your answer should refer to the rationale for investigating effect modification, the adequacy of the investigators' approach to the question, and your evaluation of the evidence for and against the investigators' conclusion concerning effect modification.
17. Evaluate the procedures used for matching in this study.
18. Evaluate each of the following sources of bias (selection bias, information bias, confounding) and describe the magnitude and direction of possible bias in effect estimation.
19. Identify and briefly assess the probable impact on the results and conclusions of the one or two primary threats to the (internal) validity of the study. Briefly assess their likely impact on the results.
20. Identify a major improvement that could be made in the study methodology. Indicate how and to what degree the change would improve the results of this and future studies.
21. Succinctly state and evaluate the authors' primary conclusion. Your answer should present at least two specific points or pieces of evidence from the article (beyond the fact that a significant association was observed) and how each bears on validity of the conclusion.
22. On the assumption of a causal relationship, assess the public health importance or potential impact of the relationship observed. (Cite or compute a basic measure of impact if possible.)
23. What public health recommendations would you make based upon the results of this study?

APPENDIX IV

Guidelines for Choosing Master's Topics

1. Student and advisor have preliminary meeting to discuss the process of identifying a topic area. The student should bring to this meeting a list which includes: (i) broad areas of interest; (ii) previous experiences which can be used to formulate a thesis plan. The advisor brings a list of: (i) on-going projects or datasets which lend themselves to a master's thesis; (ii) suggestions for ways of identifying topics, including recent journal articles, discussions with adjunct faculty, etc.
2. Student presents list of ideas for master's paper to advisor: 5 - 10 topics are listed based upon interest, readings, ongoing discussion with faculty and other students. Advisor and student discuss these options and other potential topic areas.
3. Advisor and student reach consensus on one or two topic areas. Student writes one paragraph idea statement further exploring each topic area.
4. Advisor and student agree on topic. Student writes detailed outline for the topic.

[Note: It is understood that choice of topic area may require changing of advisors.]

5. Second reader identified by student and advisor.
6. First draft of master's paper presented to advisor.
7. Next draft of master's paper presented to advisor and second reader.
8. Scheduling of master's paper presentation (Note: presentation can be work in progress).
9. Final draft of master's paper approved by advisor and second reader.

APPENDIX V

IRB GUIDANCE FOR STUDENT RESEARCH AND CLASS PROJECTS

Federal regulations and university policies require Institutional Review Board (IRB) approval for research with human subjects. This applies whether the research is conducted by faculty or students, or by individuals or a group. *Failure to obtain proper approval in advance may jeopardize your data, prevent you from publishing the results, and place you and the university in violation of federal regulations.* However, most class projects are conducted for educational purposes and not as research, and will not require IRB approval. This guidance will help you determine whether you need to get approval from the IRB before conducting a given activity. All forms and additional guidance are available at <ohre.unc.edu>

STUDENT RESEARCH

Student research activities include undergraduate honors theses, masters theses or projects, doctoral dissertations, or comparable activities. IRB approval is generally required if humans subjects are involved, either directly or through use of data about them. The student researcher may apply as Principal Investigator (PI), with a faculty advisor as co-signator. Below are some common scenarios, with variable processing requirements.

- | | |
|--|--|
| <ul style="list-style-type: none">• STUDENT RESEARCH that involves direct interaction with individuals (e.g., in person, or via mail, email, web survey, or telephone), or data from human subjects for which the researchers will have access to identifiers or Protected Health Information (PHI) like medical records (subject to HIPAA regulations). | <p>IRB approval required--submit IRB application form
Submission is required even if the data collection is covered by another IRB application under someone else's name, UNLESS the student's use is completely subsumed under that existing study, with nothing new added.</p> <p>Student researcher (PI), co-investigators (if a group) and faculty advisor are required to have current research ethics certification</p> |
| <ul style="list-style-type: none">• STUDENT RESEARCH that is limited to secondary analysis of data, records or specimens that are either publicly available, deidentified or otherwise impossible to be linked to personal identities. This also means that data or records contain no Protected Health Information (PHI) that is subject to HIPAA | <p>Submit form for "Determination Whether Research or Similar Activity Requires IRB Approval." A data use agreement between the researcher and the data custodian may still be required to verify that the researcher will not have access to identifying codes. It is this "delinking" of data from personal identifiers that allows the IRB to waive review.</p> <p>Research ethics certification of the student(s) is not required by IRB, but may be required by the faculty advisor.</p> |
| <ul style="list-style-type: none">• STUDENT RESEARCH ACTIVITIES using departmental subject pools (e.g., Psychology, Business, Political Science, Journalism and Mass Communication) even when the research activity is conducted for educational purposes as a class requirement | <p>IRB approval required—submit an IRB application form for each activity by an individual or small group</p> <p>Student researcher (PI), co-investigators (if a group) and faculty advisor should have current research ethics certification</p> |

CLASS PROJECTS

Most class projects are conducted for educational purposes and not as research. While some require submission of an **IRB application** or a **determination that IRB approval is not required**, many class projects require neither.

- | | |
|--|--|
| <ul style="list-style-type: none">• CLASS PROJECTS that involve secondary data that include Protected Health Information (PHI) that are subject to HIPAA regulations* | <p>IRB approval required-- When there are several students in the class using datasets that include PHI, a single IRB application may be submitted by the course instructor as PI, listing all students who will have access to PHI. If only one student is using PHI, then an individual IRB application with the student as PI may be submitted.</p> |
|--|--|

*Access to PHI requires a waiver of HIPAA authorization, which **requires an IRB application and IRB approval.**

The course instructor and those students using PHI must have research ethics certification.

- **CLASS PROJECTS** that involve **direct interaction** and are undertaken as **both an educational experience and as research** (e.g., results of these activities will be presented publicly, or otherwise disseminated, or the data will be stored and used by the students or others as research data).

Note: Such projects may be very similar to one another. For example, each student may interview one or more persons for a group of oral histories, or conduct telephone surveys as part of a yearly poll, but all in the class follow the same general script or guidelines. If class projects follow different protocols, a table or chart can describe these more individualized activities

IRB approval required -- a single application with the class instructor as PI will generally be sufficient.

The PI must have research ethics certification. Taking into account the sensitivity of the information to be collected, the instructor can require that students complete the CITI online course, or the instructor may provide comparable training, with the approval of the IRB.

- **CLASS PROJECTS OR PRACTICA** that involve **direct interaction** (e.g., in person, via mail, email, web surveys, or telephone), but where the purpose is training, an educational exercise or professional development, and **not** research. The project or practicum is not “research” even if students ask people questions as part of learning how to conduct interviews or surveys, take histories, administer assessments, or perform “in-house” evaluations as requested by the practicum site.

Exceptions:

1. If the intent is to carry out a practicum AND simultaneously collect research data, then an IRB application should be submitted for approval prior to beginning the activity.
2. If a student decides after the completion of a practicum activity to pursue additional activities with the same information for a master’s project or paper, then an IRB application describing secondary data use should be submitted for approval, as above.

Neither IRB approval nor IRB Determination required -- but may be requested if instructor or students are unsure, or if documentation is required (e.g., for access to participants).

Class instructor and department are responsible for providing the necessary training in respecting the privacy of the individuals and the confidentiality of any resulting information, along with training in the relevant professional ethics.

Instructor provides information about the assignment for the students to distribute to people who participate in these class projects. List the instructor as the appropriate contact person should questions arise.

- **CLASS PROJECTS** involving **secondary data analyses** that are assigned and conducted as educational exercises, and that use publicly available data or anonymous data (where there are no identifiers in anyone’s possession)

Neither IRB approval nor IRB Determination required

- **CLASS PROJECTS** involving **secondary data analyses** that are assigned and conducted as educational exercises, and that use datasets that include private information and codes that link to identifiers, but the students do not have access to the identifiers

Neither IRB approval nor IRB Determination Required

Class instructor and department are responsible for providing the necessary training in respecting the confidentiality of the data

Class instructors and departments are encouraged to contact the relevant IRB for guidance about various ways to handle topics such as privacy, confidentiality, informed consent, and professional ethics when class projects are part of the course syllabus. IRB chairs and staff can share expertise related to managing risks of deductive disclosure, coercion-free recruiting, informed consent, and special considerations for projects that include potentially vulnerable individuals. These issues may still remain even when IRB approval is not required, in which case instructors, advisors, departments and schools play an even greater role in providing the appropriate guidance and oversight.

APPENDIX VI

Sample Title Page for Master's Paper

MASTERS PROGRAMS AND SLEEP DEPRIVATION
AMONG EPIDEMIOLOGY STUDENTS

by

A. Tired Student

A Master's Paper submitted to the faculty of the University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Master of Public Health [or Master of Science in Public Health] in the Department of Epidemiology.

Chapel Hill

2007

Approved by:

John Doe, PhD
Advisor

Jane Doe-Smith, MD, MPH
Reader

Date of IRB Approval: _____

APPENDIX VII

SAMPLE SCHEDULE FOR PhD PROGRAM (assumes full-time enrollment of 9 or more hours per semester)

IMPORTANT: Students who do not hold a prior master’s degree in a related field will be required to complete the MSPH (Master of Science of Public Health) as part of the requirements toward the PhD. The MSPH requirements are comparable to the MPH requirements. This may add one to two years to the program.

	FALL	
Course #		# Credits
EPID 705		2
EPID 710		4
BIOS 600		3
EPID 700 (SAS)		3

	SPRING	
Course #		# Credits
EPID 715		5
BIOS 545		3
Substantive EPID course		3

	FALL	
Course #		# Credits
EPID 718		3
BIOS elective		3
Substantive EPID course		3
EPID 725		0.5

	SPRING	
Course #		# Credits
EPID 722		3
EPID 726		3
EPID 994		3

SUBSEQUENT FALL SEMESTERS		
Course #		# Credits
EPID 994		3*

SUBSEQUENT SPRING SEMESTERS		
Course #		# Credits
EPID 994		3*

*3 credit hours of EPID 994 constitutes full-time enrollment once all other course requirements have been met. (A student may register for additional courses if desired, but must register for a minimum of 3 hours of dissertation to be considered full-time.)

APPENDIX VIII

Guidelines for Choosing Dissertation Topics

PhD students

1. Student presents list of dissertation topics to advisor.
2. Advisor and student discuss these options as topic areas for dissertation.
3. Based upon additional reading by student, scientific merit and feasibility, advisor and student agree on topic area. Student prepares a written outline of this topic.
4. Advisor and student discuss the outline and develop a plan for conduct of the dissertation.
5. Advisor and student discuss options: (i) student writes grant proposal with advisor; (ii) student takes part in on-going funded research project with advisor; (iii) student will analyze secondary data; (iv) advisor identifies potential contacts outside the department with available data.
6. Student and advisor agree on topic and student prepares second draft of outline of dissertation proposal.
7. Student and advisor identify additional dissertation committee members.
8. Student presents second draft of proposal outline to committee and discusses it with each committee member.
9. Student prepares draft of dissertation proposal and discusses it with advisor.
10. Second draft of proposal presented to entire committee and followed up with discussion.
11. Final draft of proposal presented to committee.
12. Student schedules preliminary orals.

APPENDIX IX

DOCTORAL QUALIFYING EXAM GRADING POLICY METHODS COMPONENT

For the methods component, a letter grade is assigned according to a scale established by the examining committee. Once a letter grade is assigned for each question, the following set of overall exam results is arrived at, based on the letter grades for the two graded questions:

PASS

<u>Grade Question #1</u>	<u>Grade Question #2</u>	<u>Overall Exam Score</u>	<u>Action</u>
H	H	H	Student passes, takes no further action, and advances
H	P	P+	Student passes, takes no further action, and advances
P	P	P	Student passes, takes no further action, and advances

CONDITIONAL PASS

<u>Grade Question #1</u>	<u>Grade Question #2</u>	<u>Overall Exam Score</u>	<u>Action</u>
H	L	P*	Conditional Pass, Student must remediate the L grade in order to advance
H	F	P*	Conditional Pass, Student must remediate the F grade in order to advance
P	L	P*	Conditional Pass, Student must remediate the L grade in order to advance
P	F	P*	Conditional Pass, Student must remediate the F grade in order to advance

FAIL

<u>Grade Question #1</u>	<u>Grade Question #2</u>	<u>Overall Exam Score</u>	<u>Action</u>
L	L	L	Student fails and must repeat the entire methods exam
L	F	L-	Student fails and must repeat the entire methods exam
F	F	F	Student fails and must repeat the entire methods exam

APPENDIX X

DOCTORAL QUALIFYING EXAM GRADING POLICY SUBSTANTIVE COMPONENT

For the substantive component, program areas can opt to assign to each exam question either a numeric score (0 to 100%) or a letter grade (F, L, P, H). Students select two questions to answer, and so will have two grades that need to be combined in some way into an overall exam result.

1. If the program area decides to have their graders assign numeric grades, then the two numeric grades are averaged, and an average score of 75 or above passes the exam overall, whereas an overall grade of 74 or below requires the student to repeat the exam.
2. If the program area decides to have their graders assign letter grades, then these letter grades are assigned the following numeric values in order to obtain an overall score:

H = 95
P = 85
L = 75
F = 50

These grades are then averaged just as in (1) above. This implies the following table of exam results:

PASS

<u>Grade Question #1</u>	<u>Grade Question #2</u>	<u>Overall Exam Score</u>	<u>Action</u>
H	H	Pass	Student passes, takes no further action, and advances
H	P	Pass	Student passes, takes no further action, and advances
H	L	Pass	Student passes, takes no further action, and advances
P	P	Pass	Student passes, takes no further action, and advances
P	L	Pass	Student passes, takes no further action, and advances
L	L	Pass	Student passes, takes no further action, and advances

FAIL

<u>Grade Question #1</u>	<u>Grade Question #2</u>	<u>Overall Exam Score</u>	<u>Action</u>
H	F	Fail	Student fails and must repeat the entire substantive exam
P	F	Fail	Student fails and must repeat the entire substantive exam
L	F	Fail	Student fails and must repeat the entire substantive exam
F	F	Fail	Student fails and must repeat the entire substantive exam

APPENDIX XI

PUBLICATION PRACTICES

Contributing to the peer-reviewed literature is a scientist's responsibility as well as a measure of the quality of his/her work. Students are encouraged to publish as early as their skills allow and according to the opportunities they are able to identify during their training. It is an expectation in this department that doctoral research be of publication quality and that doctoral students submit findings from their doctoral research for peer review as part of the publication process.

Publishing is thus an important set of skills to acquire during training and students encounter questions about procedural matters and authorship as part of this training. Because of the diversity of issues to consider in this respect, some specific to particular research projects and affiliated institutions, the Department of Epidemiology does not endorse any particular set of policies related to publishing. Instead, we refer to the outline of recommendations in Graduate School Handbook (listed below) and to the better professional journals since they include authorship criteria and responsibilities in their instructions for authors. Importantly, students are encouraged to meet with their supervisors early in their training to discuss issues related to publication opportunities, especially authorship. As stated on page 46 in Academic Policies, a successful defense of a doctoral research proposal must include consideration of expectations for publication(s) based on the doctoral research, collaborative and administrative arrangements for this purpose to be transacted by the student as the lead investigator, and authorship roles.

The recommendations from the Graduate School Handbook are as follows:

- An author submitting a paper should never include the name of a co-author without that person's consent. Each co-author should be furnished with a copy of the manuscript before it is submitted. Co-authorship should be offered to (and limited to) anyone who has clearly made a significant contribution to the work.
- Anyone accepting co-authorship of a paper should realize that this action implies a responsibility as well as a privilege. If a potential co-author has serious reservations concerning a publication, the individual should decline co-authorship.
- The senior author or authors of a paper, individually or in concert, should be prepared to identify the contributions of each co-author.
- Simultaneous submission of essentially identical manuscripts to different journals is improper.
- As a general principle, research should be published in the scientific literature before reports of such research are released to the public press.

APPENDIX XII

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APPENDIX XIII

RESEARCH PROGRAM AREA LEARNING OBJECTIVES

**Cancer Epidemiology Program
Department of Epidemiology
Program Learning Objectives**

Introduction

Epidemiology provides an important approach to elucidating the causes of cancer, improving our understanding of mechanisms, as well as developing strategies for the treatment, prevention and control of cancer. The training of a successful cancer epidemiologist requires training in epidemiologic methods, biostatistics, related substantive areas (e.g., nutrition, occupational, environmental, and social epidemiology), and cancer biology. Students should also obtain an appreciation of multidisciplinary, collaborative research.

Learning Objectives

- Understand cancer statistics and the descriptive epidemiology of cancer;
- Understand known risk factors and gaps in knowledge for the major cancers;
- Understand the pathobiology of cancer;
- Apply epidemiologic methods in the design, conduct, and analysis of cancer research studies;
- Apply critical thinking in the review of projects and publications in cancer epidemiology;
- Appreciate the multidisciplinary aspect of cancer including the contributions of basic sciences, clinical medicine and the social sciences to the understanding of cancer etiology and progression;
- Appreciate methods for cancer risk assessment and screening;
- Appreciate the role and interdisciplinary methods of cancer control and prevention.

Methods for Meeting Learning Objectives

The learning objectives are met through formal coursework, mentored research training, and individualized study. There are three formal courses in cancer epidemiology, EPID770 Cancer Epidemiology and Pathogenesis, EPID771 Cancer Epidemiology Methods, and EPID775 Advanced Cancer Epidemiology. Students are also encouraged to enroll in additional related courses including EPID772 Cancer Prevention and Control, PATH725 Cancer Pathology, EPID743 Genetic Epidemiology, EPID745 Molecular Techniques for Public Health Research, and EPID815 Diet and Cancer.

Students participate in the regular cancer epidemiology seminar that provides a forum for learning about cancer research in the Department, School of Public Health, and Lineberger Comprehensive Cancer Center. Students are encouraged to present their own research or lead journal club style discussions. In addition, speakers from outside the University of North Carolina are invited to speak at the Seminar.

The Departmental requirements for the MPH, MSPH, and PhD graduate programs encompass individualized research activities related to a specific topic in cancer epidemiology. The Masters and Doctoral research projects typically require an understanding of the biology of cancer, application of epidemiologic methods, and use of methods and resources from other disciplines. Students are also encouraged to work on additional cancer-related projects that are not directly part of their masters or dissertation projects to broaden their experiences and perspectives. Practical experience in the conduct of studies is also encouraged.

Documentation of Achievement of Learning Objectives

Student progress is monitored by means of performance in the Department cancer epidemiology courses as well as other recommended courses outside the Department. These courses utilize different means of student evaluation including traditional examinations, course papers and presentations. The Department's master's comprehensive examination and doctoral program qualifying examination are designed to evaluate the student's understanding of epidemiologic theory and methods and application to specific topics in various substantive areas. The doctoral substantive qualifying examination assesses the student's knowledge base and use of epidemiologic methods in cancer epidemiology. The masters thesis is focused on a specific topic in cancer epidemiology and provides additional evidence of mastery of epidemiologic methods and substantive knowledge in cancer epidemiology. The dissertation project provides documentation of a student's ability to independently develop and execute a major independent project on a focused area of cancer epidemiologic research. The dissertation proposal and oral examination, research conduct, dissertation, final defense, and publication development are specific landmarks in the doctoral program that provide documentation for achievement of learning objectives.

Cardiovascular Disease Epidemiology Program
Department of Epidemiology
Program Learning Objectives

Introduction

The goal of the Cardiovascular Disease (CVD) Epidemiology program is to train public health scientists and innovative investigators in this field of chronic diseases. The career and educational objectives of the program seek to provide the competencies needed for the successful practice of modern epidemiology in the field of cardiovascular diseases, and to enable its graduates to meet the challenges of this rapidly changing field. The programmatic orientation reflects a dual training path: methodologic – established by the Department’s core methods curriculum – and an interdisciplinary perspective of the epidemiology of cardiovascular diseases. The latter is a rapidly evolving synthesis of chemistry, biology, mathematics, and behavioral sciences, requiring an increasing emphasis on interdisciplinary training and the need for a fluid curriculum reflective of innovations in the field. To meet its training objectives the program emphasizes two areas of integration, both at the convergence of diverse disciplines: etiologic investigation and translational, public health oriented research.

Learning Objectives

Upon satisfactory completion of Cardiovascular Disease epidemiology program the student will:

- Be familiar with the epidemiology of the various manifestations of cardiovascular disease;
- Be knowledgeable of the literature in the field of cardiovascular disease epidemiology and its sources, and be able to review it critically;
- Apply demographic, social, and epidemiologic measurement and analysis techniques to characterize the distribution and community burden of CVD health issues;
- Critically analyze the conceptual and historical frameworks used to formulate CVD study hypotheses and intervention strategies;
- Identify and characterize the major national and international CVD health issues, have an understanding of the historical evolution of cardiovascular disease in human societies, and their current, and predicted impact on public health;
- Understand the key biologic, behavioral, cultural, and economic determinants of the main CVD health issues in the U.S.;
- Identify key public health issues and policies associated with population groups at increased risk of cardiovascular diseases;
- Understand the interplay of the social and physical environment with genetic susceptibility in the origin, distribution, and control of selected CVD health issues;
- Participate with faculty and fellow students in the development of a research proposal on a CVD health issue;
- Acquire practical experience in the design and implementation of epidemiologic studies of CVD health issues, including data collection, quality assurance, and study management;
- Participate with faculty and fellow students in the oral and written communication of research findings, and their critical assessment;
- Be familiar with the key concepts and competencies required for the ethical conduct of research

Methods for Meeting Learning Objectives

The CVD epidemiology program learning objectives are implemented through formal courses, a weekly seminar series, research practicum opportunities, mentored research, attendance at regional and national scientific meetings, and individual advising by one or more program faculty. To facilitate communications and a participatory management of the program, students, staff, and faculty of the CVD epidemiology program meet twice-monthly as a group (alternating with twice-monthly meetings of the CVD program faculty and staff).

Curricular Activities Required of Students in the CVD Program Area

- Various-	All degree program course requirements
EPID735	Cardiovascular Disease Epidemiology – First level
EPID737	Cardiovascular Disease Epidemiology – Second level
EPID897	Cardiovascular Epidemiology Seminar

Curricular Activities Recommended to Students in the CVD Program Area

EPID733	Clinical Trials
EPID743	Genetic Epidemiology
EPID745	Molecular Techniques in Public Health Research
BIOS680	Introduction to Survival Analysis
BIOS665	Categorical Data Analysis
BIOS764	Advanced Survey Sampling Methods
NUTR814	Obesity Epidemiology
SOCI830	Demographic Techniques I
-Varies-	Physiology/Pathophysiology of Chronic Diseases
Practicum	A practical research experience to include study conduct, data analysis, and publication activities

Goal Setting

Each trainee and his/her advisor identify (and record) a set of yearly goals at the beginning of the fall semester, and consult these as reference points at periodic intervals. A written evaluation of the training experience is conducted during the spring semester, which serves as the basis for feed-back to the trainee, for adjustment of the goals or various corrective actions, and provides the basis for a review of the progress by the advisor.

Participatory Learning and Professionalizing Activities

Emphasis is placed on providing trainees with opportunities for active involvement and participation in research at levels of field work, data collection, analysis, and publication. It is our goal to maintain a range of such opportunities in CVD epidemiology to make the Department's research *practicum* requirement an integral part of this program.

Weekly seminars in cardiovascular disease epidemiology take place on a regular schedule, and serve as a forum for presentations by students, faculty, and guest speakers. The Program expects students to deliver at least one scientific presentation per year as part of the CVD Epidemiology seminar series, or at a national scientific or professional meeting. To enhance the learning opportunity associated with such presentations, the speakers who choose to do so are recorded on videotape (by a staff person of the program), and provided with guidelines from the UNC Center for Teaching and Learning to evaluate their delivery. Consultation with education experts is available to the trainees who wish to improve on their communication and presentation skills.

Documentation of Achievement of Learning Objectives

Frequent meetings of the student and the advisor serve as the principal mechanism to gauge the progress of individual students, and to provide appropriate feedback. Students also receive feedback from peers, faculty, and research staff in the course of their seminar presentations, their participation in research teams, and from course-related class projects. The program adheres to twice-monthly meetings of the faculty, staff, and trainees (alternating with meetings that include only staff and faculty).

Environmental and Occupational Epidemiology Program
Department of Epidemiology
Program Learning Objectives

Introduction

The Environmental and Occupational and Epidemiology Program prepare students to apply the perspective, theory, and methods of epidemiology to practical and scientific problems related to the relationship of human health to the environment and the workplace. The subject matter embraced by this program is extraordinarily broad, potentially including a wide range of health outcomes and exposures, but usually focusing on the traditionally defined realms of safety hazards and exposures to physical and chemical pollutants in the workplace and in ambient air, water, and soil. This program is designed primarily for students interested in research and academic careers who will complete the PhD, but individuals with appropriate backgrounds may also pursue the MPH with a concentration in this area.

Learning Objectives

The learning objectives for this program area are the same as those for the Department of Epidemiology as a whole with the following additions.

Upon satisfactory completion, students in the program should be able to:

- Apply the competencies laid out in the Epidemiology Department's overall learning objectives to the solution of problems in one or more of the program subspecialty areas;
- Enumerate and discuss important health problems, with their descriptive epidemiology and determinants, for one or more of the program subspecialty areas of occupational and environmental epidemiology;
- Identify key surveillance systems and other sources of data relevant to the problem;
- Discuss study design and measurement issues particular to the subspecialty area;
- Appreciate key concepts from such related disciplines as environmental sciences and, industrial hygiene;
- Collaborate with experts in the preceding fields to conduct epidemiologic research;
- Appreciate the uses of epidemiologic research in identifying hazardous agents, evaluating environmental injustice, and in setting health and safety standards;
- Communicate epidemiologic concepts, methods, and findings to community groups, labor unions, health professionals, government agencies, and employers.

In addition, students specializing in occupational or environmental epidemiology who satisfactorily complete the PhD should be able to:

- Understand the principles of exposure assessment and collaborate with specialists from the relevant fields to assess exposure for epidemiologic research;
- Analyze and interpret exposure data in epidemiologic studies.

Methods for Meeting Learning Objectives

Because of the diversity of the subject matter, students and advisors work in consultation to develop individualized programs of study to meet students' personal objectives. Students will typically specialize either in occupational or environmental epidemiology, but the areas may intersect; for example, the same chemical agent may be present in both workplaces and the ambient environment.

While involvement in research is the primary pathway to developing expertise, formal coursework serves both as a starting point and a means to achieve breadth. The program faculty have adopted curricular guidelines to assist students and their advisors in defining key content areas of this diverse field, designing a program of study, and assuring that key competencies are achieved. Two courses are offered within this program area: Environmental Epidemiology (EPID 785) and Occupational Epidemiology (EPID 780). Other relevant areas of study include the epidemiology of specific health outcomes, such as cancer or reproductive disorders, and material from closely-related disciplines such as environmental sciences, industrial hygiene, toxicology, and medical geography. Students are also encouraged to attend the Environmental Epidemiology seminars within the program area and other relevant seminars offered by the Department, the Environmental Protection Agency (EPA), the National Institute of Environmental Health Sciences (NIEHS), and other entities.

Students are strongly encouraged to become involved in research early in their studies. This involvement not only facilitates the student's intellectual growth as an epidemiologist, but teaches practical skills of data collection, data analysis, and research conduct. Opportunities for research in environmental and occupational epidemiology are available within the Department, the School of Public Health, and through other campus or government centers, such as the EPA and NIEHS.

Documentation of Achievement of Learning Objectives

Evidence of achievement of learning objectives is documented at several points in a student's program of study. Performance in required and recommended courses is an early measure of progress toward the learning objectives. These courses utilize different means of student evaluation including traditional examinations, course papers and presentations. In the course of the Intradepartmental Review, the adequacy of coursework and experience are evaluated, and guidance is offered regarding selection of supporting coursework in epidemiology, biostatistics, environmental sciences and other related fields, as described above. The Master's comprehensive examination and doctoral qualifying examination address command of epidemiology more generally. The Master's thesis and doctoral dissertation process are focused on a specific issue in environmental and occupational epidemiology. The dissertation in particular requires the student to develop an independent project as the intellectual leader. The development of the research proposal, the oral defense of that proposal, the conduct of the research, and writing the dissertation and related publications are the key elements in research training at the doctoral level. Publication, presentation of scholarly work at conferences, and successful grant applications are also valuable indicators of student achievement. The demonstrated ability to contribute scholarly work is the ultimate demonstration of achievement of the program learning objectives.

**Health Care Epidemiology Program
Department of Epidemiology
Program Learning Objectives**

Introduction

Healthcare epidemiology applies the perspective and methods of epidemiology to practical problems of healthcare organizations and delivery. It can be defined as *the study of healthcare variables, together with biological, social, behavioral, and environmental factors that influence the health outcomes of populations*. The Healthcare Epidemiology Program prepares graduate students (typically those intending to complete a Ph.D.) to integrate epidemiologic methods into the study of the impact of clinical, administrative, and policy aspects of healthcare delivery on health outcomes. *Within the broad label of healthcare epidemiology fall such areas as epidemiology-based health services research, clinical epidemiology, pharmacoepidemiology, and outcome research*. The key to healthcare epidemiology, like the rest of the field, is that the dependent variables of interest are health outcomes of populations.

Learning Objectives

Upon satisfactory completion of the Healthcare Epidemiology Program, the student will be able to:

- Discuss the interrelated nature of clinical, administrative, and policy processes and their impact on health outcomes of populations;
- Discuss the role of the population-based perspective in the delivery of healthcare services;
- Discuss the origins and development, including changing perspectives, of the discipline of healthcare epidemiology;
- Discuss and account for the relationship between traditional etiologic epidemiology and healthcare epidemiology;
- Effectively participate in interdisciplinary approaches to studying issues of the impact of the healthcare system;
- Evaluate the impact of healthcare programs (e.g. disease management programs) and specific interventions/treatments (e.g. pharmaceuticals or clinical procedures) on the health outcomes;
- Effectively communicate the results of research and evaluation efforts to the variety of stakeholders in the healthcare system (e.g. different types of healthcare professionals, researchers, policy makers, and the public);
- Consult with clinicians, administrators, and policy makers about the implementation of population-based programs designed to improve the delivery of healthcare services;
- Critically review the scientific literature relating to the epidemiology of healthcare delivery for both methodological quality and potential applicability;
- Design and conduct an epidemiological study related to the impact of healthcare, together with biological, social, behavioral, and/or environmental factors on the health outcomes of populations.

Methods for Meeting Learning Objectives

The broad nature of healthcare epidemiology means that there are many related classes taught on the UNC campus. However, there are two core courses in the Department of Epidemiology that focus on the integration of clinical, administrative, and policy processes in relation to their impact on health outcomes. Epidemiology 800, Medical Care Epidemiology, is a survey course of methods and issues related to the overall epidemiologic study of healthcare delivery. Epidemiology 765, Methods and Issues of Pharmaco-epidemiology, provides an introduction to the application of epidemiological methods and reasoning to the study of the effects of drugs in

populations. The skills taught in this course can also be applied to other healthcare interventions. These two core courses supplement the Department's core methodology course sequence by enhancing the student's ability to apply epidemiological methods and reasoning to practical problems of the system of healthcare delivery.

In addition to the core courses above, advisors in the healthcare epidemiology program work in conjunction with individual students to determine courses both in the Department of Epidemiology and on the rest of the UNC campus that will enhance skills necessary for working in specific areas of healthcare epidemiology. Examples of such courses include health economics, clinical trials, prevention methodology, and medical geography.

Healthcare epidemiology seminars and the healthcare epidemiology day provide excellent opportunities for achieving many of these objectives. Furthermore, faculty advisors in the program work with students to identify internship opportunities for gaining first-hand experience in health care delivery and its potential impact on health outcomes. Sites include managed care organizations, pharmaceutical companies, and governmental agencies.

Documentation of Achievement of Learning Objectives

Evidence of individual student achievement of the learning objectives is documented at several points during the study of healthcare epidemiology. The ability to discuss and consider the relationship between clinical, administrative, and policy processes and health outcomes is demonstrated through learning products in core healthcare epidemiology and related courses (discussed above). The Interdepartmental Review provides an opportunity for the individual student, the student's advisor, and related healthcare epidemiology faculty to discuss progress toward meeting the school, departmental, and program learning objectives. The results of this review are included in the student's file. The completion of the departmental comprehensive exam demonstrates a basic understanding of core epidemiological research skills and issues. The defense of the dissertation proposal documents the ability to justify research concepts and methodology related to healthcare epidemiology and ensures that the dissertation falls within the framework of healthcare epidemiology. The successful completion and defense of the dissertation further demonstrates research skills and the ability to integrate core concepts of healthcare epidemiology into research endeavors. Publications, in peer-reviewed journals, arising from the dissertation provide further evidence, of an outcome nature, of achieving the learning objectives.

Infectious Diseases Epidemiology Program
Department of Epidemiology
Program Learning Objectives

Introduction

The field of infectious diseases epidemiology has encountered a number of new challenges in recent decades. Newly identified pathogens and intransigent older diseases have challenged the once prevailing view that medical technology had tamed infectious diseases. The advent of AIDS led to the resurgence of some epidemiologic tools that had fallen into relative disuse, such as mathematical modeling of epidemics, and revealed inadequacies in newer epidemiologic methods developed for noninfectious diseases. Moreover, the traditional distinction between infectious and chronic began to break down as some infectious diseases manifested chronic characteristics and some chronic diseases were found to have infectious origins.

The challenges of infectious diseases in the current era require that the epidemiologists aiming to understand them and lessen their effects in populations draw from multiple disciplines to bring new perspectives and tools. The program in infectious diseases in the Department of Epidemiology is designed to provide students with a core of knowledge and skills necessary for all infectious disease epidemiologists along with a means of combining them with perspectives and skills from complementary areas of study. The learning objectives of the program are delineated accordingly. Several of the core skills for the infectious disease program are the core areas of teaching within the Department, including basic epidemiologic quantitative methods. These are assumed and thus not mentioned in our program learning objectives, below, but are presented elsewhere in the learning objectives for the Department.

Learning Objectives

- Understand the pathogenesis of infectious diseases including:
 - pathogen entry
 - host defense
 - microbe spread through the body
 - immune response to infection
 - microbial strategies in relation to immune response
 - mechanisms of cell and tissue damage
 - recovery from infection
 - microbe elimination
 - host and microbial factors influencing susceptibility
- Be familiar with the natural history of major infectious diseases;
- Understand the social, economic, behavioral, demographic and environmental determinants of infections, particularly emerging infections;
- Understand the causes for the enormous disproportion in infectious disease burden between resource poor and resource rich countries;
- Understand the special status in infectious disease prevention and control in marginalized populations such as prisoners, homeless, uneducated and persons of color;
- Be familiar with key surveillance systems and other sources of data relevant to the problem;
- Understand strategies for early detection and control of episodes of bioterrorism;
- Understand the principles and practices of outbreak investigation;
- Be familiar with the broad principles of infectious disease prevention including strategic use of prophylactic vaccines and vector control;
- Be familiar with the basic strategies for treatment of infectious diseases including use of antimicrobials;

- Understand the principles associated with infectious disease elimination;
- Be familiar with the broad principles of infectious disease modeling;
- Apply epidemiologic methods in the design, conduct and analysis of infectious disease epidemiologic studies;
- Communicate epidemiology concepts, methods and findings to community groups, state and local health departments, health professionals and at-risk populations.

Methods for Meeting Learning Objectives

The competencies acquired in the infectious diseases epidemiology program and the courses in which the information and skills are taught are tabulated below. The names of the courses and their number of units are listed on the next page.

Core Topic or Skill	Relevant Course(s)
Public health impact of infectious diseases	EPID 750, 752, 753, 756, 757
History of public health responses to infectious diseases	EPID 752
Biological aspects of infectious diseases, including cellular biology, physiology, and immunology.	EPID 751
Behavioral and social aspects of infectious disease transmission	EPID 752, 757, 826
Measurement instruments (biological, clinical, behavioral, and social)	EPID 750, 751, 756, 826, 905
Population dynamics and epidemic modeling	EPID 752, 894
Outbreak investigation	EPID 750, 752, 764
Public health institutions related to the study and control of ID	EPID 750, 752, 753, 894
Interventions	EPID 750, 752, 756, 757
Evaluation of interventions	EPID 756, 757
Quantitative methods peculiar to infectious processes	EPID 754, 894

- EPID 750 Fundamentals of Public Health Surveillance (3)
- EPID 751 Emerging and Re-Emerging Infectious Diseases (4)
- EPID 752 Introduction to Methods in Infectious Disease Epidemiology (3)
- EPID 753 Prevention and Control of Infectious Diseases at the Level of the Community (3)
- EPID 754 Mathematical Modeling of Infectious Diseases (3)
- EPID 756 Control of Infectious Diseases in Developing Countries (1-3)
- EPID 757 Epidemiology of HIV/AIDS in Developing Countries
- EPID 826 Social Epidemiology: Concepts and Measures
- EPID 894 Infectious Disease Seminar (1)
- EPID 905 Epidemiology Laboratory Practice (1-9)
- EPID 764 Hospital Epidemiology (1-2)

In addition to formal coursework, students expand their knowledge base and hone their skills through close consultation and research collaboration with their advisors, as well as with other faculty and researchers. Students are encouraged to become involved in research apprenticeships and internships at offsite locations as well as on campus (i.e., North Carolina State Health Department, CDC, GlaxoSmithKline, etc.).

Documentation of Achievement of Infectious Diseases Learning Objectives

Doctoral students review their curriculum with an intradepartmental review committee. It is in this context, particularly, where the faculty assess the degree to which a student has adequately studied a discipline that

complements infectious diseases epidemiology. (A student in the MPH program does not have an intradepartmental review, but students in this degree program are typically physicians, and thus their clinical skills serve as the desired complement to the infectious diseases epidemiology skills.) The grades for courses are also considered in the intradepartmental review. A low grade in a class that serves as the student's only exposure to a particular skill will likely result in a recommendation to take an additional class covering the skill.

In the doctoral program, a student's facility with core skills is also assessed through interactions with faculty in: identifying and preparing a dissertation proposal; the defense of the proposal; carrying out the dissertation research; and the final defense.

**Injury Epidemiology Program
Department Of Epidemiology
Program Learning Objectives**

Introduction

Injury epidemiologists conduct research describing injury hazards, identifying risk factors for injury, or quantifying the effect of various interventions designed to prevent injury. From a public health perspective, injury is a major problem, however, it is received limited attention from epidemiologists. The scope of injury control is broad, encompassing such diverse areas as suicide, homicide, youth violence, intimate partner violence, firearm violence, transportation safety (including diverse areas such as motor vehicle occupant protection systems such as airbags and seat belts, use of cell phones while driving, pedestrian safety, policies alcohol and driving, roadway design, bicycle helmets), falls and other injuries in older adults, occupational injury, prevention of violence in the workplace, sports injuries, chronic and overuse injuries (also known as musculoskeletal disorders), and injury prevention as a global health concern.

Injury epidemiologists conduct research that advances the field of injury prevention. In injury control, there is a close link between research and prevention action. Injury research needs to be timely and address specific areas of prevention. Injury epidemiologists are expected to develop science that directly addresses prevention opportunities, and furthermore, are expected to be able to engage with non-epidemiologists (ranging from policy makers to community advocates) to implement interventions that (based on the best available scientific knowledge) prevent injuries.

Learning Objectives

The overall goal of the program in injury epidemiology is to develop epidemiologists who further the science of injury control through research and are capable of engaging with society use their research findings to prevent injuries.

Injury epidemiologists graduating from the program with a PhD will have these abilities:

- Command of the principles of epidemiologic study design and data analysis
- Ability to adapt and apply those tools to design and conduct injury research
- Ability to collaborate and communicate with other scientists and clinicians in diverse areas (biomechanics, industrial hygiene, ergonomics, trauma care)
- Ability to assess and integrate scientific information from diverse sources from a prevention and research standpoint
- Ability to communicate epidemiologic concepts, methods, and findings, to non-epidemiologists and non-scientists
- Ability to present research at a national meeting

Injury epidemiologists graduating from the program with a PhD will possess these key knowledge items:

- Understand the importance of injury, and specific areas within injury, from a public health perspective
- Understand basic concepts in injury prevention, such as the Haddon matrix, and the difference between active and passive intervention
- Understand the use of cohort, case-control, and case-crossover designs to assess risk factors for injury in diverse injury topics
- Understand the use of epidemiologic studies to quantify the effectiveness of interventions (e.g. use of

ecologic studies to study such as traffic safety laws, or other regulations or policies implemented at the community level, in terms of reduction of injury risks at the level of the individual)

- Understand the use of case-crossover for the study of transient hazards
- Understand the application of surveillance techniques to injury surveillance
- Understand the global nature of the injury problem in diverse countries

Students completing the Masters degree in the injury program will develop a subset of the above knowledge and abilities.

Methods of Achieving Learning Objectives:

Coursework: Students are expected to complete one 3-credit course in the science of injury control. Currently, EPID 783 (administered in HBHE Dept) is the only such course. Another course in Maternal Health and Child Health (MHCH 753) addresses Violence Against Women. Students are strongly encouraged to take other courses that support and extend their area of expertise.

Dissertation for Doctoral Students: The dissertation is an opportunity for doctoral students to conceptualize, develop, and implement research in a specific topic or topics in injury. This research is expected to lead to published papers that significantly advance the science in the student's chosen area. Doctoral students will be proficient in specific study designs (e.g. case-crossover studies) or data analysis techniques (e.g. analysis of rates) that are particularly applicable to injury research. Methodologic work that clarifies, enhances, or demonstrates the use of epidemiologic concepts and/or methods to injury research is encouraged.

Thesis for Masters Students: The thesis paper is an opportunity to conduct independent mentored research and build research skills. Publication is strongly encouraged.

Research Skills: Students are expected to become involved in research early in their studies. Students are expected to take the initiative in setting up meetings with their faculty advisors, and with other researchers engaged in injury research. Engagement with the faculty on faculty research projects, either through paid employment or via the student working with existing data to write a new paper, is a fundamental and very important means for students to develop research skills. In addition, students should proactively seek out opportunities to develop their own independent research. They are strongly encouraged to solicit the assistance of faculty advisers in developing their independent research areas. Faculty can provide assistance with brainstorming ideas, refining research questions, advice on methods and data analysis tools, and access to existing databases. Faculty will actively promote and assist student in develop research ideas and conducting research, however, the impetus and commitment to developing, conducting, and publishing research needs to come from the student.

Resources: Students are encouraged to engage with the Injury Prevention Research Center, the Highway Safety Research Center, and other resources on campus. A wide range of researchers in the School and elsewhere at UNC conduct or facilitate research related to injuries, including (but not limited to) the Office of the Chief Medical Examiner, the Department of Emergency Medicine, Department of Surgery and Trauma Center, Department of Orthopedics, Division of Allied Health Sciences, Human Movement Sciences, Exercise and Sport Science, Sports Medicine Research Laboratory, Human Movement Laboratory, Maternal Health and Child Health, Health Behavior and Health Education, Center for Urban and Regional Planning. Off-campus resources include Injury and Violence Prevention Branch in the Division of Public Health at the State's Department of Health and Human Resources; Division of Occupational and Environmental Health at Duke University; Terry Sanford Institute for Public Policy at Duke University; Duke Sports Medicine. Students are also encouraged to engage with local and national groups in the community interested in injury control. These can include Mothers Against Drunk Driving, KidsNCars, SafeKids, North Carolinians Against Gun Violence, as well as clinicians engaged in prevention activities, local schools, parks and recreation departments, assisted living facilities, etc.

Documentation of Achievement of Learning Objectives:

The demonstrated ability to design, conduct, and publish epidemiologic research in injury control is the ultimate demonstration of attainment of the objectives listed above. Publication of independent research, perhaps in collaboration with faculty, and collaboration on faculty-led publications, is one primary marker of attainment of the objectives. Another primary marker is success in obtaining funding for research through mechanisms such as grants or contracts.

For doctoral students, important interim markers of attainment of the objectives include:

- the Intra-department Review, in which faculty review student progress with the student
- completion of the Methods Qualifying Examination
- completion of the Injury Qualifying Examination
- defense of the dissertation proposal
- final dissertation defense
- professional interaction and engagement with scientists and clinicians involved in injury control
- professional interaction and engagement with community groups (such as advocates) involved in injury control

For Masters students, important interim markers of attainment of the objectives include:

- Masters comprehensive exam
- Thesis paper
- professional interaction and engagement with scientists and clinicians involved in injury control
- professional interaction and engagement with community groups (such as advocates) involved in injury control

**Reproductive Epidemiology Program
Department of Epidemiology
Program Learning Objectives**

Introduction

Reproductive health includes a wide spectrum of epidemiologic and public health issues, ranging from influences on fertility and pregnancy to the long-term consequences of perinatal events on mothers and children. Because reproduction is not strictly a medical event, the linkage to such fields as demography and sociology is quite strong, but the focus of our Department's program is more on the study of the many environmental, social, and biomedical factors that affect reproductive health. Causes of a wide range of adverse outcomes in the reproductive spectrum are the focus of faculty and student research. Students who are trained in this program area include those seeking an MPH degree, most of whom have clinical expertise in a relevant area such as obstetrics or pediatrics and wish to enhance their capability to conduct original research, and those seeking MSPH and PhD degrees, who are planning to become researchers and teachers evaluating the determinants of reproductive health.

Learning Objectives

Upon completion of the Reproductive Epidemiology Program, the student will be able to:

- Define terminology and descriptive epidemiology of major reproductive health indices;
- Understand basic reproductive biology and embryology;
- Be familiar with the health care system as it relates to reproductive health;
- Understand known and suspected causal factors related to the common health outcomes in reproductive epidemiology, including infertility, pregnancy loss, preterm birth, low birth weight, and birth defects;
- Recognize unique methodologic challenges in the study of reproductive outcomes and study design, conduct, and analysis strategies employed to address those challenges;
- Know how to assess the major reproductive health endpoints for epidemiologic study;
- Learn to work collaboratively with reproductive biologists and clinicians on studies of reproductive health.

Methods for Meeting Learning Objectives

Students will meet these learning objectives through formal courses, mentored research training, and individualized study. All students in the program are expected to take Epidemiology 851, Perinatal Epidemiology, and Epidemiology 853, Advanced Topics in Perinatal and Pediatric Epidemiology, as well as the core methods courses in epidemiology and biostatistics. In Epidemiology 715, Theory and Quantitative Methods in Epidemiology, the principal laboratory exercise required of all students makes use of birth records for the state of North Carolina, integrating some of the special features of study design and analysis in reproductive epidemiology with the more general methods training in the Department. Students often find additional courses in the Department of Maternal and Child Health, and in the areas of embryology, teratology, and demography useful.

Individual research activities are required for the MPH, MSPH, or PhD degrees. In the course of developing research on specific topics, students address the relevant biological background, the methodologic concerns specific to an issue in reproductive epidemiology, and the ability to understand an issue comprehensively through reading and collaboration.

Seminars are scheduled several times each semester with a distinctive reproductive epidemiology orientation, supplemented by seminars of overlapping relevance in environmental and nutritional epidemiology. Summer

internships or longer-term research opportunities at institutions like Family Health International or the National Institute of Environmental Health Sciences help students to expand their research opportunities and areas of application.

Documentation of Achievement of Learning Objectives

Evidence to demonstrate the achievement of learning objectives begins with performance in the required course, Perinatal Epidemiology, in which students must integrate information on the relevant biological, statistical, and clinical considerations to develop a study to address an important reproductive health question. In the course of the Intradepartmental Review, the student's adequacy of course work and experience is evaluated, and guidance is offered regarding selection of supporting coursework in reproductive biology, other areas of epidemiology, or broader aspects of reproductive health such as demography or family planning. The master's comprehensive examination and doctoral methods qualifying examination address command of epidemiology more generally. The doctoral substantive qualifying examination assesses the student's knowledge base and use of epidemiologic methods in reproductive epidemiology. The masters thesis and doctoral dissertation process are focused on a specific issue in reproductive epidemiology, and the dissertation in particular requires the student to develop an independent project as the intellectual leader. The development of the research proposal, the oral defense of that proposal, the conduct of the research, and writing the dissertation and related publications are the key elements in research training at the doctoral level. The demonstrated ability to contribute to the scholarly literature is the ultimate demonstration of achievement of the program learning objectives.

APPENDIX XIV

MILESTONES IN THE LIFE OF A MASTER'S (MPH or MSPH*) STUDENT

Enrollment at UNC's Department of Epidemiology ☺

Satisfactory completion of course requirements

_____ EPID 700 or BIOS 511 or BIOS 541/2

_____ EPID 705

_____ EPID 710 or 711

_____ EPID 715

_____ EPID 718

_____ Substantive EPID course one

_____ Substantive EPID course two (or EPID 806 or EPID 733)

_____ BIOS 600 or equivalent

_____ BIOS 545 or equivalent

_____ ENVR 600 or equivalent

_____ HBHE 600 or equivalent

_____ HPAA 600 or equivalent

Master's Comprehensive Exam

Master's Practicum

_____ IRB approval

_____ EPID 900

Completion of 42 credit hours

Master's Paper

_____ IRB approval

_____ Presentation

_____ EPID 992

_____ Submission (properly bound, of course ☺)

Graduation - we'll miss you! ☺

*Most MSPH students will be completing some of their PhD requirements during the Master's phase.

APPENDIX XV

MILESTONES IN THE LIFE OF A DOCTORAL STUDENT

Enrollment at UNC's Department of Epidemiology ☺

Satisfactory completion of course requirements

- EPID 700 or BIOS 511 or BIOS 541/2
- EPID 705
- EPID 710 or 711
- EPID 715
- EPID 718
- EPID 722
- EPID 725
- EPID 726
- Substantive EPID course one
- Substantive EPID course two (different area than course one)
- BIOS 600 or equivalent
- BIOS 545 or equivalent
- Upper level BIOS course

Doctoral Qualifying Exam

- Methods
- Substantive

Doctoral Practicum

Teaching Assistant experience

Intradepartmental Review

Dissertation

- Establish doctoral committee
 - form submitted to Student Services Office
- Proposal Defense
 - EPID 994 (3 credits)
- IRB Approval
- Submission for publication of manuscript from dissertation
- Final defense of dissertation
 - EPID 994 (3 credits)

Graduation -- we'll miss you! ☹