

# STUDENT/FACULTY HANDBOOK

## Department of Epidemiology and Population Health

### UNIVERSITY OF LOUISVILLE SCHOOL OF PUBLIC HEALTH AND INFORMATION SCIENCES

2009-2010

***Disclaimer:*** The material presented in this student handbook was developed in concordance with the graduate student catalog developed by the Graduate School. The information presented here is specific to the MS/PhD Program in Epidemiology only and is only applicable to that Program. Should items not be contained herein, the Graduate School Catalog will govern items not covered.

Edited by Paula Bossmeyer

This is the official handbook for the students enrolled in the Department of Epidemiology & Population Health's MPH, Master and PhD Programs in the School of Public Health & Information Sciences at the University of Louisville. It has been prepared to acquaint students with the programs, curriculum, policies & procedures of the Department. This handbook is supplemental to the SPHIS Catalog. In all cases, graduate students in the SPHIS must adhere to all policies and procedures of the SPHIS. Additional information and University student policies are printed in the *University of Louisville Student Handbook*, the University of Louisville Schedule of Courses, and the University of Louisville website, [www.louisville.edu](http://www.louisville.edu)

As a student in the Epidemiology Concentration, you are responsible for being familiar with the contents of this handbook, the SPHIS catalog and the University of Louisville Student Handbook.

By signature below, I have read and accept the policies & procedures as outlined in the Department of Epidemiology & Population Health's Master/PhD program and will adhere to their policies and procedures.

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Student

Date

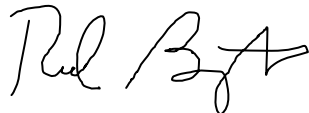
## Message from the Chair

Welcome to the Department of Epidemiology and Population Health, a young and rapidly growing program in the newly accredited School of Public Health and Information Sciences at the University of Louisville. The Department provides a full range of academic training in Epidemiology, the core science of Public Health, offering MPH, MS and PhD degrees.

The Epidemiology program's research and teaching strengths are in cancer, molecular and population genetics, cardiovascular disease, environmental health, applied epidemiology, nutrition, and aging. Our faculty interacts extensively with researchers throughout the University and Health Sciences Center, including the James Graham Brown Cancer Center and the Schools of Medicine, Dentistry, and Nursing. We have partnerships with Louisville Metro Department of Public Health and Wellness, the Kentucky Department of Public Health, the Kentucky Cancer Program, and other local entities as practicum preceptors. You will find our faculty to be able teachers and willing mentors whose doors are always open to students with ideas and initiative.

This Epidemiology Faculty/Student Handbook provides all the information students will need about our MPH, MS and PhD curricula and guidelines to ensure smooth and mutually agreeable faculty-student relationships. We hope that you find it useful.

Sincerely,

A handwritten signature in black ink, appearing to read "Richard N. Baumgartner". The signature is fluid and cursive, with the first name "Richard" and last name "Baumgartner" clearly legible.

Richard N. Baumgartner, PhD  
Professor and Chair

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## DEPARTMENT OVERVIEW

The Department of Epidemiology & Population Health currently offers an MPH concentration in Epidemiology, an MS in Epidemiology, and a PhD concentration in Epidemiology. The MPH concentration prepares students for a career in public health practice as a local, state or federal field epidemiologist. The MS/PhD track is designed for students wishing to pursue a career in academic research and teaching, and provides intensive training in the philosophy, materials and methods of contemporary epidemiology with emphasis on risk factors and disease etiology.

## MISSION STATEMENT

Epidemiology & Population Health is directed at identifying the determinants of health, disease, disability and death in populations for the purposes of promotion, control and prevention. Thus, it is a core discipline for Public Health that provides much of the information necessary for the development, implementation and evaluation of public health intervention, policy and law. Modern Epidemiology is a *transdisciplinary* science, and epidemiologists regularly integrate new knowledge on disease biology and mechanisms with environmental and behavioral science and complex statistical methods in population-based studies designed to illuminate disease etiology and test preventive interventions. They also often play a significant role in designing clinical trials to test new treatments to ameliorate disease or improve prognosis.

The **mission** of the Department of Epidemiology & Population Health is to:

- provide the highest possible quality education and training in the philosophy, principles and practice of modern epidemiology;
- conduct innovative, interdisciplinary research on the causes and consequences of disease in populations using state-of-the-art methods;
- conduct translational research;
- help build epidemiologic capacity and infrastructure at local, state and federal levels;
- promote interdisciplinary teaching and health research within the school and across the university; and
- become recognized as a major provider of education, research and service throughout the region

## DEPARTMENT FACULTY

**Richard N. Baumgartner**, PhD, Chair,  
Professor & Distinguished Scholar  
[rnbaum01@gwise.louisville.edu](mailto:rnbaum01@gwise.louisville.edu) -- 852-2038

Dr. Baumgartner is a nationally and internationally recognized expert in the nutritional epidemiology of age-related chronic diseases and conditions. He is best known for his seminal work on the epidemiology of sarcopenia, or age-related muscle loss, as a risk factor for disability, congestive heart disease and death. His current research concerns nutritional, molecular and genetic risk factors for breast cancer. He joined the faculty at the University of Louisville after 15 years in the University of New Mexico School of Medicine where he served as Interim Chief of the Division of Epidemiology and Preventive Medicine, Associate Director for Science in the Institute of Public Health, and Director of the Aging and Genetic Epidemiology Program.

**Kathy Baumgartner**, PhD, MA, MS  
Associate Professor  
[kbbaum01@gwise.louisville.edu](mailto:kbbaum01@gwise.louisville.edu) -- 852-1894

Dr. Baumgartner is a nationally recognized cancer epidemiologist with extensive experience designing and conducting large population-based studies. Her current research is focused on the contradiction between breast cancer incidence rates and prevalence of exposures among the primary ethnic groups in the Southwest US (Hispanic, American Indian, non-Hispanic White). She is currently involved in research studies evaluating breast cancer risk as well as prognosis including recurrence, survival and quality of life issues among long-term survivors. She was previously involved in studies of cervical cancer and respiratory disease.

**Rose Devasia**, MD, MPH  
Assistant Professor  
[Radeva01@gwise.louisville.edu](mailto:Radeva01@gwise.louisville.edu)

Dr. Devasia Anderson recently joined the UL faculty. She received her MD from the University of Louisville (1999), followed by a Med/Peds residency at UTMB-Galveston and the University of Kentucky (2003). She then joined the Centers for Disease Control and Prevention's Epidemic Intelligence Service (EIS) where she investigated several community outbreaks including hepatitis A, enterotoxigenic E.coli, and hepatitis B. Following EIS she completed an Infectious Diseases fellowship and her MPH (2008) at Vanderbilt University, and then joined their faculty. For the past 3 years her primary research focus at Vanderbilt has been on fluoroquinolone-resistant tuberculosis.

**Frank Groves**, MPH, MD  
Assistant Professor  
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Dr. Groves is a nationally recognized cancer epidemiologist with extensive experience designing and conducting large population-based studies. Her current research is focused on the contradiction between breast cancer incidence rates and prevalence of exposures among the primary ethnic groups in the Southwest US (Hispanic, American Indian, non-

Hispanic White). She is currently involved in research studies evaluating breast cancer risk as well as prognosis including recurrence, survival and quality of life issues among long-term survivors. She was previously involved in studies of cervical cancer and respiratory disease.

**Carlton Hornung, PhD, MPH**

Professor

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Dr. Hornung is a nationally and internationally recognized expert in cardiovascular disease epidemiology, clinical translational research, the design and conduct of clinical trials, and therapeutics. He is the former Chair of department, former Director of the Clinical Research, Epidemiology and Statistics Training Program (CREST), and is currently leading the development of the new Clinical Translational Sciences Institute. He is highly regarded for his expertise in the design of interdisciplinary clinical research education programs.

**Dr. Richard Kerber, PhD**

Associate Professor

Dr. Kerber is a nationally recognized expert in the genetic and molecular basis of aging, longevity, cancer, and in statistical methods in population genetics. He joins the faculty of the University of Louisville in fall 2008 after 20 years at University of Utah, where he held several important positions including Interim Director of the SEER Cancer Registry.

**Susan Muldoon, MPH, PhD**

Assistant Professor

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Dr. Muldoon is the Acting Director of Clinical Research, Epidemiology and Statistics Training Program (CREST), and Associate Dean of Student Services. Dr. Muldoon's broad research interests include the epidemiology of aging, chronic disease management and end of life care. Specifically she is interested in patient outcomes following long-term acute care; management of breast cancer as a chronic disease; and doctor-patient-caregiver communication at the end of life.

**Dr. Elizabeth O'Brien, PhD**

Assistant Professor

Dr. O'Brien has expertise in population genetics and research experience related to cancer, aging and longevity. She joins the University of Louisville in fall 2008 after 20 years at the University of Utah.

**Chenxi Wang, MD, MS, PhD**

Assistant Professor

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Dr. Wang has expertise in nutritional and genetic epidemiology. His primary research interest is in the nutritional and molecular epidemiology of human obesity, cancer, and other chronic diseases.

**Kristina Zierold, PhD, MS**

Assistant Professor

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Dr. Zierold is a former Epidemic Intelligence Service (EIS) Officer with the Centers for Disease Control and Prevention. Her research interests include developmental disorders, injury, birth defects, and the health effects associated with exposure to lead and metals.

## **DEPARTMENTAL STAFF**

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### **Contacting Department of Epidemiology & Population Health Faculty or Staff**

1. Telephone Messages: You may leave a message for a faculty or staff member with the Department of Epidemiology & Population Health Administrative Assistant (852-3003) or you may leave a voice mail message with individual faculty/staff members at their respective phone extensions.
1. E-Mail: All faculty and staff have e-mail accounts and you may communicate with them via e-mail.
2. Faculty-Staff Mailboxes: Written messages or materials for faculty/staff may be placed in each individual mail slot outside their door.

### **Department of Epidemiology & Population Health Web Page**

<https://www.sphis.louisville.edu/deph.home.cfm>



## MPH CONCENTRATION IN EPIDEMIOLOGY

### Introduction

Students in the Master's of Public Health program can elect to concentrate their course of study in epidemiology during the second year. The department has developed a program of study designed to meet the core competencies defined by the Association of Schools of Public Health (ASPH) and prepare students for epidemiologic practice in local, state and federal health agencies.

### Competencies

Requirements for the MPH degree are:

- Successful completion of core, concentration, practicum experience, and integrating experience coursework
- Completion of all deliverables for the practicum experience
- Comprehensive written examination on the core MPH competencies

The MPH program has adopted the competencies published by the Association of Schools of Public Health. (ASPH Education Committee. "Master's Degree in Public Health Core Competency Development Project, Version 2.3."

<http://www.asph.org/userfiles/version2.3.pdf>.)

The following competencies are identified for epidemiology:

The student must display the ability to:

1. Identify key sources of data for epidemiologic purposes.
2. Identify the principles and limitations of public health screening programs.
3. Describe a public health problem in terms of magnitude, person, time and place.
4. Explain the importance of epidemiology for informing scientific, ethical, economic and political discussion of health issues.
5. Comprehend basic ethical and legal principles pertaining to the collection, maintenance, use and dissemination of epidemiologic data.
6. Apply the basic terminology and definitions of epidemiology.
7. Calculate basic epidemiology measures.
8. Communicate epidemiologic information to lay and professional audiences.
9. Draw appropriate inferences from epidemiologic data.
10. Evaluate the strengths and limitations of epidemiologic reports.

The department also considers the following cross-competencies in public health biology to be particularly important for the epidemiology concentration:

1. To incorporate public health biology – the biological and molecular context of public health into public health practice.
2. Specify the role of the immune system in population health.

3. Describe how behavior alters human biology.
4. Identify the ethical, social and legal issues implied by public health biology.
5. Explain the biological and molecular basis of public health.
6. Explain the role of biology in the ecological model of population-based health.
7. Explain how genetics and genomics affect disease processes and public health policy and practice.
8. Articulate how biological, chemical and physical agents affect human health.
9. Apply biological principles to development and implementation of disease prevention, control, or management programs.
10. Apply evidence-based biological and molecular concepts to inform public health laws, policies, and regulations.
11. Integrate general biological and molecular concepts into public health.

**Admission**

Second year MPH students selecting the epidemiology concentration must be in good standing, have completed all core courses, and have good grades in PHEP 601 Introduction to Epidemiology and PHST-600 Biostatistics I.

**Faculty Advisor**

Upon admission to the MPH concentration, each student is assigned a faculty advisor who works with the student in the Practicum Experience. The general role of the advisor and requirements for the Practicum are described in the MPH Practicum Manual.

The department seeks to match students to best extent possible with faculty who share their interests, but recognizes that any faculty member is capable of advising a student in the epidemiology concentration curriculum and the accomplishment of their practicum project. Once a student-faculty advisor assignment has been made, the department strongly discourages any subsequent reassignment as this may disrupt progress in the practicum.

**Curriculum**

| Epidemiology Concentration Coursework |                |                                    |                |
|---------------------------------------|----------------|------------------------------------|----------------|
| Semester                              | Course #       | Course Title                       | Credit - Hours |
| Fall II                               | PHEP-602       | Epidemiologic Methods              | 3              |
|                                       | PHEP-616       | Disease Surveillance               | 3              |
|                                       |                | Concentration elective course      | 3              |
|                                       | PHPH-679       | Practicum Experience: Epidemiology | 3              |
|                                       | Semester Total |                                    |                |
| Epidemiology Concentration Coursework |                |                                    |                |

| Semester            | Course #       | Course Title   | Credit<br>-<br>Hours |
|---------------------|----------------|--|----------------------|
| Spring II           | PHEP-617       | Field Epidemiology                                   | 3                    |
|                     | PHEP-650       | Advanced Topics in Epidemiology                      | 3                    |
|                     | PHPH-679       | Practicum Experience: Epidemiology                   | 3                    |
|                     | PHMS-697       | Integrating Learning and Experience in Public Health | 3                    |
|                     | Semester Total |  | 12                   |
| Concentration Total |                |  | 24                   |

**Electives**

The elective courses in the epidemiology concentration may be selected from any 3 credit-hour, graduate-level course in the University with approval of the student's faculty advisor and the concentration coordinator.

**Practicum**

Preference is given to Practicum Experiences that are relevant to the science and practice of Epidemiology. Students are encouraged to seek out practicing Epidemiologists in local and state agencies, faculty outside the School of Public Health with on-going research projects that involve aspects of epidemiology, or individuals in other organizational settings who are interested in supporting a Practicum Experience with appropriate relevance.

## **MASTER OF SCIENCE IN EPIDEMIOLOGY**

### **Introduction**

The MS program in Epidemiology is designed to prepare students a career in epidemiologic research, as opposed to practice.

### **Competencies**

To graduate, students in the MS program in Epidemiology must maintain a GPA of 3.0 and demonstrate the following competencies:

1. Mastery of the principles of epidemiologic, observational study design, including:
  - a. The merits and limitations of cross-sectional, retrospective and prospective designs
  - b. Methods of disease surveillance and case ascertainment
  - c. Methods of population-based sampling
  - d. Sample size and statistical power calculation
  - e. Issues in the measurement of exposure and disease transmission
  - f. Identification and correct interpretation of potential biases in study design
2. Knowledge of the socioeconomic and geographic distribution, risk factors, and etiology of major acute, infectious and chronic morbidity and mortality.
3. Mastery of basic methods of analysis of epidemiologic data, including:
  - a. Measures of disease frequency, prevalence and incidence
  - b. Methods for adjusting rates for age, gender, etc.
  - c. Measures of association, odds ratio, relative risk
  - d. Control of confounding and effect modification through stratification and statistical control
  - e. Modeling in multiple logistic regression
  - f. Principles of survival analysis
  - g. Correct interpretation of results with regard to issues of error, bias and criteria for causality

These competencies are demonstrated through the successful completion of the coursework and the design, execution, documentation, and presentation of the research for the student's thesis.

### **Admission**

Students with a prior baccalaureate or more advanced degree in an appropriate field of study, from a regionally accredited university or college are eligible for the MS program in Epidemiology. Previous coursework in mathematics and/or statistics and biological or health sciences (for example, biology, biochemistry, anatomy, physiology, microbiology) is strongly recommended. Applicants who are judged to not have sufficient prior coursework or experience in these areas may be required to take additional coursework.

The following are additionally required for admission:

- Undergraduate GPA at least 3.0 on 4.0 scale
- GRE scores taken within the past 5 years (official from ETS). Scores > 50<sup>th</sup> percentiles on both the Quantitative and Verbal sections are recommended.
- If applicable, Test of English as a Foreign Language (TOEFL) score in at least 60<sup>th</sup> percentile

### **Faculty Advisor**

Upon admission to the MS program, each student is assigned a faculty advisor who works with the student to develop a program of study.

### **Curriculum**

The program is designed as a two-year program of coursework and thesis research and preparation. The student is expected to develop and plan his or her thesis research prior to the final semester in which the majority of the actual research is done.

### **Degree Requirements**

Degree requirements include required coursework in epidemiology, elective coursework in biostatistics and in public health sciences, and a thesis.

### **Coursework**

36 total credit-hours:

- 18 credit-hours of required coursework
- 6 credit-hours of elective coursework in biostatistics
- 6 credit-hours of elective coursework in public health
- 6 credit-hours of thesis research

| Required Coursework |                            |  |                |
|---------------------|----------------------------|--|----------------|
| Semester            | Course #                   | Course Title   | Credit - Hours |
| Fall I              | PHEP-602                   | Epidemiologic Methods  | 3              |
|                     | PHEP-619                   | Biology of Disease in Populations                                      | 3              |
|                     | PHST-xxx                   | Biostatistics elective course  | 3              |
|                     | Semester Total             |  | 9              |
| Spring I            | PHEP-618                   | Epidemiologic Methods II   | 3              |
|                     | PHEP-604                   | Epidemiology of Acute and Infectious Diseases                          | 3              |
|                     | PHST-xxx                   | Biostatistics elective course  | 3              |
|                     | Semester Total             |  | 9              |
| Fall II             | PHEP-607                   | Epidemiology of Cancer   | 3              |
|                     | PHEP-609                   | Epidemiology of Chronic Diseases                                       | 3              |
|                     | PHEP-666                   | Thesis Research in Epidemiology  | 0-3            |
|                     | PHEP-xxx                   | Epidemiology elective course   | 0-3            |
|                     | Semester Total             |  | 9              |
| Spring II           | PHxx-xxx<br>or<br>PHEP-650 | Public health elective course<br>or<br>Advanced Topics in Epidemiology | 3              |
|                     | PHEP-666                   | Thesis Research in Epidemiology  | 3-6            |
|                     | Semester Total             |  | 9              |
| Degree Total        |                            |  | 36             |

### Electives

Program requirements include two elective courses in biostatistics and one or two in a public health area other than epidemiology and biostatistics.

Selection of electives for both requirements is done by the student and his or her faculty advisor with approval of the program director or chair of the department. In addition, selection of the biostatistics electives is done in conjunction with the chair of the Department of Bioinformatics and Biostatistics or his or her designee.

Students may petition to take courses not on these lists with approval of the instructor, the student's faculty advisor, and the program director or chair of the department or his or her designee.

| Approved Biostatistics Electives |              |              |
|----------------------------------|--------------|--------------|
| Course #                         | Course Title | Credit-Hours |
|                                  |              |              |

| Approved Biostatistics Electives |                                  |              |
|----------------------------------|----------------------------------|--------------|
| Course #                         | Course Title                     | Credit-Hours |
| PHST-624                         | Clinical Trials I                | 3            |
| PHST-650                         | Advanced Topics in Biostatistics | 3            |
| PHST-680                         | Biostatistical Methods I         | 3            |
| PHST-681                         | Biostatistical Methods II        | 3            |
| PHST-661                         | Probability                      | 3            |
| PHST-662                         | Mathematical Statistics          | 3            |
| PHST-683                         | Survival Analysis                | 3            |
| PHST-684                         | Categorical Data Analysis        | 3            |
| PHST-682                         | Multivariate Analysis            | 3            |

| Approved Public Health Electives |   |              |
|----------------------------------|---|--------------|
| Course #                         | Course Title  | Credit-Hours |
| PHEP-606                         | Genetic and Molecular Epidemiology                          |              |
| PHEP-611                         | Nutritional Epidemiology                                    |              |
| PHEP-612                         | Epidemiology and Bioterrorism                               |              |
| PHEP-613                         | Epidemiology of Aging                                       |              |
| PHEP-615                         | Epidemiology of Maternal and Child Health                   |              |
| PHCI-671                         | Preventive Medicine I                                       |              |
| PHCI-672                         | Preventive Medicine II                                      |              |
| PHCI-605                         | Survey Research Methods                                     |              |
| PHCI-611                         | Introduction to Clinical Epidemiology                       |              |
| PHEH-650                         | Advanced Topics in Environmental and Occupational Health    |              |
| PHPB-650                         | Advanced Topics in Health Promotion and Behavioral Sciences |              |
| PHMS-650                         | Advanced Topics in Health Management and Systems Sciences   |              |

### **Thesis**

A thesis is required of every candidate for the MS degree in Epidemiology. It is to be a scholarly achievement in research, and should demonstrate a thorough understanding of research techniques in epidemiology. The following sections summarize the basic requirements for the thesis committee, thesis proposal, and defense. Greater detail can be found in the section: ***Student Advising, Practicum, Thesis and Dissertation Research.***

### **Thesis Committee**

The thesis shall be read by a reading committee, chaired by the student's faculty advisor and approved by the department Chair and the Dean of the Graduate School. This committee shall consist of three members, and must include one representative of an

allied department. The thesis must be approved by the committee and the Chair of the department.

### **Thesis Proposal**

After successful completion of 18 credit-hours of coursework, each MS student must submit a written thesis proposal to their thesis committee.

### **Thesis Preparation**

The thesis is to be prepared in format and binding according to the guidelines of the School of Interdisciplinary and Graduate Studies.

### **Thesis Approval**

The thesis is to be submitted in completed form to the Chair of the department at least thirty days before the end of the term in which the candidate expects to be graduated, and the candidate is not eligible for final examination until the thesis has been accepted by the committee and Chair.

The thesis committee schedules an oral defense by the candidate. The time and place for the defense is published to the general academic community, members of which are free to attend the defense. The dissertation is approved by a majority vote of the committee and the concurrence of the department Chair.

### **Thesis Distribution**

One unbound copy of thesis, signed by the thesis committee, must be deposited with the Office of the School of Interdisciplinary and Graduate Studies before graduation.



## **Doctor of Philosophy in Public Health Sciences**

### **Concentration in Epidemiology**

#### **Introduction**

The concentration in epidemiology in the Ph.D. program in public health sciences is designed to develop academic researchers in population-based epidemiology.

#### **Competencies**

To graduate, students in the Ph.D. concentration in epidemiology must demonstrate the following competencies *in addition to those for the MS degree*:

- In depth knowledge of the history and philosophy of epidemiology
- Mastery of experimental and observational study designs and the ability to identify optimal designs for specific hypotheses
- Ability to develop and apply:
  - Questionnaires
  - Biomarkers for health status, exposure and susceptibility
- Mastery of multivariable analytic methods for evaluating risk and prognosis
- Ability to critically evaluate the published epidemiologic research
- Expertise in one or more epidemiologic specialty such as nutritional, molecular, clinical, genetic, cancer, or chronic disease epidemiology
- Practical knowledge of issues in research management including:
  - Formation and leadership of multidisciplinary teams
  - Staffing, budgeting, tracking
  - Subject recruitment and retention
  - Data quality control and data safety management
  - Funding mechanisms and grantsmanship
  - Research ethics and regulations
- Professional quality peer-review, oral and poster presentation, report, grant, and manuscript writing
- Mentoring of junior peers
- Development, conduct, completion and defense of a dissertation on an original research project

Competencies are demonstrated by passage of the proficiency and candidacy examinations, by successful mentoring of master's students or doctoral students not yet in candidacy, and by successful completion and defense of the dissertation.

#### **Admission**

Students who have satisfactorily completed the M.S. degree in epidemiology are eligible for the Ph.D. concentration in epidemiology. Students with a master's degree in a related

discipline or an advanced degree (for example, M.D., Ph.D., D.O.) may be accepted also pending evaluation of appropriate training, experience, and coursework. Previous coursework in mathematics and/or statistics and biological or health sciences (for example, biology, biochemistry, anatomy, physiology, microbiology) is strongly recommended. Students completing the M.Sc. in clinical investigation sciences or MPH with an epidemiology concentration may be required to complete additional coursework to be accepted into the epidemiology Ph.D. concentration.

### **Curriculum**

#### ***Faculty Advisor***

Upon admission to the concentration, each student is assigned a faculty advisor who works with the student to develop a program of study.

#### ***Program of Study***

The program of study recognizes core elements of modern epidemiology as well as its breadth and multidisciplinary nature. This requires the selection of a minor field of concentration, such as biostatistics, environmental science, molecular genetics, behavioral science, health management and systems sciences, clinical research, or another relevant area of study, and the completion of at least 6 credit-hours of coursework in this field.

#### **Degree Requirements**

The emphasis in doctoral training goes beyond accumulating course credit. The coursework is organized into two blocks of 24 credit-hours each. Completion of the first block of coursework is prerequisite for sitting for the proficiency examination. After passing the proficiency examination, the student can proceed with the second block of coursework. Successful completion of the second block is prerequisite to sitting for the candidacy examination. After passing the candidacy examination, the student is admitted to doctoral candidacy. A doctoral candidate must then successfully develop and defend a dissertation proposal that describes an original and independent research project. Upon successful defense of the proposal, the student may then proceed to dissertation research. Upon successful completion of the research, oral defense of the dissertation, and demonstration of the required competencies listed above, the student is awarded the Ph.D. degree.

The Ph.D. concentration in epidemiology is designed to consist of 48 credit-hours of coursework over a minimum of two years plus one to four years for completion of the dissertation. The coursework outlined below represents an ideal sequence for a full-time student. A part-time student may need to deviate from this sequence. As part of the first block, a student is expected to complete required courses in basic and advanced epidemiologic methods that cover core areas including study design, research management, and statistical analysis; the survey course in disease biology and

pathophysiology; and a minimum of 6 credit-hours of epidemiology seminars. The student must pass the proficiency examination before proceeding to minor electives and individual studies in the second block, which must include an additional 3 credit-hours of epidemiology seminars. Exceptions may be granted upon approval by the student's advisor and the department chair.

Coursework

48 total credit hours (beyond admission requirements) consisting of the following:

- 9 credit-hours of required courses
- 9 credit-hours of seminars in epidemiology
- 18-21 credit hours of epidemiology electives
- 6 credit hours of minor electives (outside of epidemiology)
- 3-6 credit-hours of mentored readings and research in epidemiology

| <i>Required Coursework</i> |                  |   |                     |
|----------------------------|------------------|---|---------------------|
| <i>Semester</i>            | <i>Course #</i>  | <i>Course Title</i>                             | <i>Credit-Hours</i> |
| Block 1                    |                  |   |                     |
| Fall I                     | PHEP 618         | Epidemiologic Methods II                        | 3                   |
|                            | -OR-<br>PHEP-xxx | -OR if already taken -<br>Epidemiology elective | 3                   |
|                            | PHEP-619         | Biology of Disease in Populations <sup>B1</sup> | 3                   |
|                            | PHEP-xxx         | Epidemiology elective                           | 3                   |
|                            | PHEP-750         | Seminars in Epidemiology <sup>B1</sup>          | 3                   |
|                            | Semester total   |   |                     |
| Spring I                   | PHEP-701         | Advanced Epidemiologic Methods <sup>B1</sup>    | 3                   |
|                            | PHEP-702         | Epidemiologic Research Management <sup>B1</sup> | 3                   |
|                            | PHEP-xxx         | Epidemiology elective                           | 3                   |
|                            | PHEP-750         | Seminars in Epidemiology <sup>B1</sup>          | 3                   |
|                            | Semester total   |   |                     |
| Block 1 total              |                  |   | 24                  |

| <i>Required Coursework</i> |  |   |                     |
|----------------------------|--|---|---------------------|
| <i>Semester</i>            | <i>Course #</i>                            | <i>Course Title</i>   | <i>Credit-Hours</i> |
| Block 2                    |  |   |                     |
| Fall II                    | PHEP-xxx                                   | Epidemiology elective   | 3                   |
|                            | PHEP-xxx                                   | Epidemiology elective   | 3                   |
|                            | -OR-<br>various                            | -OR-<br>Minor elective  | 3                   |
|                            | various                                    | Minor elective  | 3                   |
|                            | PHEP-750                                   | Seminars in Epidemiology <sup>B2</sup>  | 3                   |
|                            | Semester total                             |   | 12                  |
| Spring II                  | PHEP-xxx                                   | Epidemiology elective   | 3                   |
|                            | Two of:<br>PHEP-xxx<br>various<br>PHEP-778 | Two of:<br>Epidemiology elective<br>Minor Elective<br>Readings and Research in Epidemiology | 3<br>3<br>3         |
|                            | PHEP-778                                   | Readings and Research in Epidemiology <sup>B2</sup>   | 3                   |
|                            | Semester total                             |   | 12                  |
|                            | Block 2 Total                              |   | 24                  |
| Degree Total               |  | 48  |                     |

Key: <sup>B1</sup> = required in Block 1  
<sup>B2</sup> = required in Block 2

### Minor Elective Requirement

As a part of the approved program of study, the student is required to complete 6 credit-hours of coursework in a minor field of concentration. Areas directly relevant to the science of epidemiology are preferred, including, but not limited to, biostatistics, bioinformatics, medical geography, molecular or population genetics, environmental health, toxicology, microbiology, health management, health promotion and behavioral science, and clinical research. These courses may be selected from ones offered within the School of Public Health and Information Sciences, other departments within the University, or from sources outside the University with permission and acceptance of credit by the Graduate School.

Minor courses should be chosen by the student in consultation with his or her advisor and the respective course directors. Students may petition to take courses not on this list with approval of the instructor and the chair of the Department of Epidemiology and Population Health. The student must provide a written rationale for the choice of minor coursework in the program of study. The following is a partial list of approved minor

courses. Some courses may have prerequisites, and the student is expected to either meet these or obtain permission from the instructor before registering.

| <i>Approved Electives for Minor Requirement</i> |   |                     |
|---|---|---------------------|
| <i>Course #</i>                                 | <i>Course Title</i>   | <i>Credit-Hours</i> |
| BIOC-641  | Advanced Eukaryotic Genetics                                  | 3                   |
| BIOC-660  | Molecular Endocrinology                                       | 3                   |
| BIOC 661  | Molecular Mechanisms of Toxicology (cross-listed as PHTX-661) | 3                   |
| BIOC-668  | Molecular Biology   | 3                   |
| BIOC-675  | Cancer Biology  | 3                   |
| EXP-600   | Physiology of Exercise  | 3                   |
| EXP-605   | Human Physiology  | 3                   |
| GEOG-656  | Spatial Statistics  | 3                   |
| GEOG-657  | Geographic Information Systems                                | 3                   |
| MBIO-687  | Microbial Pathogenesis  | 3                   |
| MBIO-618  | Topics in Advanced Microbiology                               | 3                   |
| MBIO-680  | Genetics of Infectious Diseases                               | 3                   |
| NURS-670  | Cancer Epidemiology and Pathophysiology                       | 3                   |
| PHBI-750  | Statistical Methods for Bioinformatics                        | 3                   |
| PHBI-751  | High-throughput Data Analysis                                 | 3                   |
| PHCI-501  | Bench to Bedside  | 1                   |
| PHCI-602  | Health Services and Outcomes Research                         | 2                   |
| PHCI-610  | New Drug and Device Development                               | 2                   |
| PHCI-624  | Clinical Trials I: Planning and Design                        | 2                   |
| PHCI-625  | Clinical Trials II  | 2                   |
| PHCI-632  | Ethical Conduct of Healthcare Research                        | 2                   |
| PHCI-650  | Medical Decision Analysis                                     | 2                   |
| PHEH-650  | Advanced Topics in Environmental and Occupational Health      | 3                   |
| PHMS-650  | Advanced Topics in Health Management and Systems Science      | 3                   |
| PHPB-650  | Advanced Topics in Health Promotion and Behavioral Science    | 1-3                 |
| PHST-650  | Advanced Topics in Biostatistics                              | 3                   |
| PHST-680  | Biostatistical Methods I                                      | 3                   |
| PHST-681  | Biostatistical Methods II                                     | 3                   |
| PHST-661  | Probability   | 3                   |
| PHST-662  | Mathematical Statistics                                       | 3                   |
| PHST-683  | Survival Analysis   | 3                   |
| PHST-682  | Multivariate Analysis   | 3                   |
| PHST-684  | Categorical Data Analysis                                     | 3                   |
| PHST-785  | Nonlinear Regression  | 3                   |
| PHTX-607  | Seminar in Genetics and Molecular Medicine                    | 3                   |

| <i>Approved Electives for Minor Requirement</i> |   |                     |
|---|---|---------------------|
| <i>Course #</i>                                 | <i>Course Title</i>   | <i>Credit-Hours</i> |
| PHTX-618  | Topics in Pharmacology & Toxicology                           | 3                   |
| PHTX-630  | Toxicology: Principles and Application                        | 3                   |
| PHTX-661  | Molecular Mechanisms of Toxicology (cross-listed as BIOC 661) | 3                   |
| PHZB-605  | Systemic Physiology I   | 3                   |
| PHZB-611  | Advanced Human Physiology                                     | 3                   |

### *Proficiency Examination*

Upon successful completion of the first block of required coursework, the student is eligible to sit for the written proficiency examination, which is administered by a committee of departmental faculty appointed by the chair. The timing of the proficiency examination is determined by the student's faculty advisor and the department chair. The subject matter includes basic knowledge of disease biology and pathophysiology; theory and skills in epidemiologic research methods, including study design and management; and quantitative analytic methods. A student who does not successfully pass the proficiency examination is allowed a second opportunity to pass the exam. Failing the proficiency examination the second time results in dismissal from the program.

### *Candidacy Examination*

After passing the proficiency examination and upon completion of the second block of coursework, the student is eligible to sit for the written and oral candidacy examination, which is administered by a committee appointed by the department chair and composed of departmental faculty and Graduate School faculty in the student's minor area to be. The subject matter includes knowledge of advanced epidemiologic methods; specialized knowledge pertaining to the minor field of concentration; disease biology and pathophysiology, which may be tailored to the student's special area of interest; and knowledge of the research process. Successful passage of the candidacy examination admits the student to doctoral candidacy. A student who does not successfully pass the candidacy examination may be required to take additional or remedial coursework and is allowed a second opportunity to pass the exam. Failing the candidacy examination the second time results in dismissal from the program.

### *Dissertation*

A dissertation is required of every candidate for the degree of doctor of philosophy in public health sciences with a concentration in epidemiology. The dissertation is a scholarly achievement in research and presents an original contribution to knowledge and should demonstrate a thorough understanding of research techniques in epidemiology and the ability to conduct independent research. The following sections summarize the basic requirements for the dissertation committee, dissertation proposal, and defense.

Additional details are available in the department's document "Student Advising, Thesis and Dissertation Committees."

### *Dissertation Committee*

The dissertation is read by a dissertation committee, chaired by the student's faculty advisor and appointed by the Dean of the School of Graduate and Interdisciplinary Studies on the recommendation of the chair of the department. The committee consists of five members and must include one representative of an allied department. The dissertation must be approved by the committee and the chair of the department.

### *Dissertation Proposal*

After successful completion of the candidacy examination, a doctoral candidate must submit a written dissertation proposal to the members of the dissertation committee. The candidate is then orally examined on the dissertation proposal.

### *Dissertation Preparation*

The dissertation is prepared with the format and binding according to the guidelines of the School of Interdisciplinary and Graduate Studies.

### *Dissertation Approval*

The dissertation is submitted in completed form to the chair of the department at least thirty days before the end of the term in which the candidate expects to be graduated, and the candidate is not eligible for final examination until the dissertation has been received by the committee and chair.

The dissertation committee schedules an oral defense by the candidate. The time and place for the defense is published to the general academic community, members of which are free to attend the defense. The dissertation is approved by a majority vote of the committee and the concurrence of the department chair.

### *Dissertation Distribution*

One unbound copy of the dissertation, signed by the dissertation committee, must be deposited with the Office of the School of Interdisciplinary and Graduate Studies before graduation.

## STUDENT ADVISING AND PROGRAM OF STUDY

### **I. Student Advisor**

Upon acceptance and admission to the MPH, MS or PhD programs, each new student will be assigned an advisor by the department Chair.

The student's advisor must be a faculty member or associate member\* of the department.

Students and/or advisors who wish to change their assigned relationship must make a written request to the department Chair.

The responsibilities of the student advisor are:

1. To assist the student in the development and revision of their **Program of Study**
2. To advise the student on the appropriate selection of courses
3. To monitor the student's performance in the curriculum, notify the Chair in the event of poor performance, and recommend remedial action when needed
4. To mentor the student in the development of professional behavior
5. To advocate for the student's nomination for financial aid, honors, and awards

### **II. Program of Study**

All new and continuing students must develop a 1 page written document that describes their planned **Program of Study** including the following information:

- a. A brief statement of the student's academic goals, including their minor field of study
- b. A tentative listing of courses taken or to be taken

The Program of Study must be signed by both the student and advisor and submitted to and approved by the department Chair. Students must meet with their advisor at least two weeks prior to the start of each semester to review and make any amendments to their Program of Study.

\* Associate Faculty are non-department faculty who have been granted associate membership by the Chair and membership in the Graduate School Faculty

### **MPH Concentration**

All basic Policies and Procedures of the Graduate School and the School of Public Health and Information Sciences that pertain to the MPH Program and Practicum Experience must be met. In addition to these, the department has established the following supplementary Policies and Procedures:



### **Role of Concentration Coordinator**

Each department in the School of Public Health and Information Sciences maintains a concentration coordinator who serves as the department's liaison to the MPH Program. The DEPH MPH-epidemiology concentration coordinator advises the Chair on the assignment of students to faculty advisors.

## **ACADEMIC AND PROFESSIONAL BEHAVIOR**

The Department of Epidemiology and Population Health takes the policies on *Student Academic Honesty* of the School of Public Health and Information Sciences and the UofL Graduate School *very seriously*. All students in the MPH, MS and PhD programs in Epidemiology *must* sign the document certifying that they have read the SPHIS policy at the time of matriculation. Any questions a student has about the content of these policies *must* be discussed with their faculty advisor at the first opportunity following matriculation.

When a violation of academic honesty occurs within a course, the faculty course director will determine the nature and extent of any disciplinary action. If the violation occurs outside of a course, this responsibility falls upon the Department Chair. In either case, the violation is reported to the Associate Dean for Academic Affairs who may convene a committee to determine if further disciplinary action is warranted.

The nature and extent of disciplinary action may range from a simple written reprimand that may be filed with the student's records to expulsion from the SPHIS, depending on the severity of the violation.

The Department faculty considers the following violations to be sufficiently serious to warrant suspension or dismissal from the Epidemiology program:

- *Fabrication and falsification of data or research results*
- *Plagiarism*
- *Cheating in any oral or written examination*

Detailed definitions and examples of these can be found in SPHIS Student Academic Honesty policy and at the following university website address:

<http://coldfusion.louisville.edu/webs/a-s/writingcenter/uwc.cfm?page=plagiarism>

### **Professional Ethics and Behavior**

An important objective of the Department's MS and PhD program is for the student to learn and practice standards of professional ethics and conduct appropriate to the discipline of epidemiology and, more broadly, to public health and biomedical science. Epidemiology holds a unique place among the biomedical sciences in that it includes ethical obligations to communities as well as individual participants involved in health research. The information which epidemiologists produce on the distribution and determinants of disease in populations can have enormous impact on society, so it is critically important that epidemiologists adhere to the highest ethical and scientific standards to preserve public trust.

The American College of Epidemiology has published *Ethics Guidelines* for the profession of epidemiology and students are expected to become thoroughly acquainted with this document which discusses the core values, duties, and virtues of the epidemiologist. A copy of the ACE Ethics Guidelines can be found in the appendix to the DEPH Student Handbook and at:

<http://www.acepidemiology2.org/policystmts/EthicsGuide.asp>

All students in the MS and PhD Epidemiology program are expected to take CITI training in Human Subjects Research and to maintain certification which will be monitored by the Department.

Students in the Epidemiology program are expected to display professional behavior towards each other, students in other programs, faculty and staff at all times. A key aspect of professional behavior is respect. Violations of Academic Honesty clearly disrespect all members of the profession, as well as the public trust. Other forms of disrespect are more subtle; for example being chronically unprepared for class, turning homework in late, or using inappropriate language towards faculty or peers.

### **Grading and Course completion**

The Department follows the policies of the University of Louisville Graduate School on *Grades and Grading* with the following, allowable amendments.

#### **Grades of C or Lower**

Courses with grades of “C” or lower will not be counted towards the fulfillment of the degree requirements for the MS or PhD in Epidemiology. Students must repeat these courses to obtain credit towards their degree requirements. Exceptions may be granted for elective or minor coursework.

Grades of C or lower will be calculated in the graduate student's grade point average. However, when a student repeats a course, the grade point average will be calculated on the basis of the last grade earned, although all previous grades will remain on the transcript.

A student whose GPA falls below 3.0 will be placed on academic probation until he or she regains a 3.0 average. Students who are on academic probation for two consecutive semesters will be dismissed from the program.

Students with Graduate Research/Teaching Assistantships or Fellowships whose GPA falls below 3.0 or who have more than one incomplete grade in any semester may lose this financial support.

### **Incomplete work**

Department faculty may give a student an “I”, for “incomplete work”, when the student is unable to complete all work required for a course within the term. Generally, an “I” will be granted by the instructor *only* when the student provides *evidence for exceptional circumstances* that prevented them from completing the assigned work. Examples of “exceptional circumstances” would be a documented personal or family crisis or an illness or hospitalization with prolonged recuperation.

If the work is not completed by the end of the next term, *regardless of whether the student is enrolled*, the "I" will automatically become an "F", and the course will not be counted towards fulfillment of degree requirements. The student will be required to repeat the course and may be placed on academic probation if their GPA falls below 3.0.

### **Pass/Fail Grading Option**

Some courses in the Department may use a Pass/Fail Grading Option. Unless specified otherwise by the instructor in the course syllabus, grades of A+ through B- will be equivalent to a “Pass”. Grades of C and lower will be considered “Fail”. Students who “Fail” a course will not receive credit for that course towards their degree requirements and may be required to repeat the course.

## **MS and PhD PROGRAMS**

### **THESIS AND DISSERTATION**

#### **I. Thesis Committee**

All basic Policies and Procedures of the Graduate School and the School of Public Health and Information Sciences that pertain to the appointment, composition, and responsibilities of thesis committees must be met. In addition to these, the department has established the following supplementary Policies and Procedures:

MS students must complete at least 18 credit hours of course work and form an approved thesis committee before they can register for PHEP 666 and begin work on a thesis. Ordinarily, this would not occur earlier than the beginning of the second year of study.

The MS thesis committee must include at least three committee members all of whom are members of the Graduate Faculty. One member must serve as the committee chair. At least one member, but no more than one-third of the committee, must be from another department.

The thesis committee chair must be a faculty member or associate member of the department, and a Senior Graduate Faculty member. He/she will replace the student's advisor with regard to continuing responsibility for their Program of Study. Students may choose to have their advisor continue as committee chair or select a new faculty member.

The thesis committee may serve as both the reading committee and oral examination committee.

The thesis committee must be approved by the Dean of the Graduate School upon recommendation by the department Chair.

#### **Thesis**

The student must prepare a minimum 2 page proposal that is unanimously approved by their committee before beginning work on their thesis. A copy of this proposal, signed by all committee members, must be submitted to and accepted by the department Chair. In the event that a proposal is not unanimously approved by the committee or is deemed unacceptable by the department Chair, the student may petition the faculty of the department to vote on approval and acceptance. In this event, the department Chair serves as a mediator in the dispute, and reserves the right to break any tied vote within the department.

It is expected that the thesis will be original, professional quality, and will form the basis for one or more potentially publishable papers. The following examples may be acceptable for the MS thesis:

- a. a systematic, critical review of the contemporary epidemiologic literature on a specific disease and its risk factors;
- b. a meta-analysis of results from several epidemiologic studies of a specific disease or risk factor;
- c. a research report on the results of analyses by the student of primary or secondary data for a disease or health condition and its associated risk factors;

The student must meet at least monthly with their committee chair to monitor progress on their thesis until it is completed. The committee chair will provide a brief, written report on the student's progress to the department Chair at the end of each semester.

Upon completion of a rough draft of the thesis, the student may petition the committee to schedule a Thesis Examination. This examination cannot be scheduled until all committee members have read and approved the rough draft of the thesis, and the committee chair has notified the department Chair. The department administrator schedules the examination using either the on-line or hardcopy form required by the Graduate School. This form must be submitted no later than two weeks before the date of the oral examination. The Graduate Dean's Office shall notify all members of the Graduate Faculty at least one week in advance that they are invited to participate in the examination, but only members of the committee may vote.

The Thesis Examination consists of two parts: (1) an oral presentation of the thesis, and (2) an oral examination of the student's knowledge base and skills. The oral presentation should take the form of a professional talk accompanied by Powerpoint slides and should not exceed 30 minutes. Other faculty, students and members of the general public may attend the oral presentation and ask questions. The oral examination follows the presentation and is conducted exclusively and in privacy by the thesis committee. This examination assesses the candidate for the general competencies listed below. When the oral presentation and examination are complete, the committee chair asks the candidate to leave the room and the committee votes on a grade and any required revisions to the written thesis. It is the committee chair's responsibility to ensure fair and appropriate conduct of the thesis presentation, oral examination, and grading.

All committee members must be present at the Thesis Examination. No changes may be made to the committee membership later than 30 days prior to the scheduled presentation and defense. Any exceptions to this rule must be approved in advance by the department Chair.

The final thesis must adhere to Graduate School guidelines and be completed and approved by the committee and submitted to the Graduate School at least 30 days in advance of the graduation date for the semester.

Ordinarily, the student should complete their thesis within one-year following the completion of all coursework and approval of their thesis topic. Extensions in time may be granted.

### **Masters competencies**

To graduate, a student in the MS in Epidemiology must maintain a GPA of 3.0 and demonstrate the following competencies through their coursework, thesis, and oral examination:

1. Ability to appropriately interpret and evaluate epidemiologic research literature with regard to issues of study design, data analysis, error, bias and criteria for causality
2. In-depth knowledge of:
  - Natural histories and impacts of major chronic, infectious and degenerative diseases
  - Data needs and analytic methods for determining standard and advanced epidemiologic measures
  - Sources of bias in epidemiologic investigations
  - Major determinants of incidence, transmission, prevalence, progression and distribution of common diseases
  - Knowledge of the socioeconomic and geographic distribution, risk factors, and etiology of major acute, infectious and chronic morbidity and mortality
3. Ability to design a sound epidemiologic research study with respect to:
  - The merits and limitations of cross-sectional, retrospective and prospective designs
  - Methods of disease surveillance and case ascertainment
  - Methods of population-based sampling
  - Sample size and statistical power calculation

## **II. Dissertation Committee**

All basic Policies and Procedures of the Graduate School and the School of Public Health and Information Sciences that pertain to the appointment, composition, and responsibilities of dissertation committees must be met. In addition to these, the department has established the following supplementary Policies and Procedures:

PhD students cannot form a committee and begin formal work on their dissertation before they have completed at least 48 credit hours of course work, taken and passed the *Doctoral Candidacy Examination*, and have been accepted to “doctoral candidacy” by the Graduate School.

The PhD dissertation committee must include at least five persons all of whom are members of the Graduate Faculty. At least **three** members must be from the department. One member must be from another department in the School of Public Health and Information Sciences and one from a unit outside the department and school.

The dissertation committee chair must be a faculty member or associate member of the department, and a Senior Graduate Faculty member. He/she will replace the student's advisor with regard to continuing responsibility for the completion of the dissertation. Students may choose to have their advisor continue as committee chair or select a new faculty member.

The dissertation committee must be approved by the Dean of the School of Graduate and Interdisciplinary Studies upon recommendation by the department Chair.

### **Dissertation**

The student must prepare a 5 page (minimum) pre-proposal that is approved by a majority of their committee before beginning work on a full dissertation proposal. This pre-proposal should minimally include the following elements:

1. Rationale
2. Brief synopsis of background literature and/or preliminary studies
3. Specific Aims
4. Overview of study design or approach
5. Statistical analytic plan including power analysis
6. Assessment of feasibility
7. List of key references

A copy of this pre-proposal, signed by all committee members, must be submitted to and accepted by the department Chair.

Upon acceptance of the pre-proposal, the student then develops a full proposal. The full proposal should expand on the elements in the pre-proposal in the general format of an NIH application (PHS 398 format) and be 20 to 25 pages in length. (*See instructions for NIH proposal Guidelines (<http://grants1.nih.gov/grants/funding/phs398/phs398.html>).*) The full proposal must be approved by a majority of the committee. A copy, signed by all committee members showing their approval or dissent, and reasons for dissent, must be submitted to and accepted by the department Chair before the student can proceed with their dissertation research.

In the event that a proposal is not approved by a majority of the committee or is deemed unacceptable by the department Chair upon review of the dissenting opinions, the student may petition the faculty of the department to vote on approval and acceptance. In this



event, the department Chair serves as a mediator in the dispute, and reserves the right to break any tied vote within the department.

The student will then provide a 20 minute, oral, PowerPoint presentation summarizing the proposal that is open to faculty, students and the general public for questions and comments. The student may then begin research and work on the final, written dissertation.

The student must meet at least twice per semester with their committee to monitor progress on their dissertation research and writing until it is completed. It is recommended that they meet more frequently with their committee chair. The committee chair will provide a brief, written report on the student's progress to the department Chair at the end of each semester.

The dissertation must be an original contribution and demonstrate the student's mastery of the discipline of epidemiology. It must present a study design and data of sufficient quality and quantity as to convince the doctoral committee that the student possesses the ability to pursue independent and original research. Students may choose either a traditional dissertation format or one consisting of three or more publishable, related manuscripts. If the student chooses the later format, the dissertation must include an introduction that provides an overall literature review and a summary and discussion that ties the results of the manuscripts together.

Upon completion of a rough draft of the dissertation, the student may petition the committee to schedule a Dissertation Defense. The defense cannot be scheduled until all committee members have read and approved the rough draft of the dissertation, and the committee chair has notified the department Chair. The department administrator schedules the dissertation defense using either the on-line or hardcopy form required by the university. This form must be submitted no later than two weeks before the date of the defense. The Graduate Dean's Office shall notify all members of the Graduate Faculty at least one week in advance that they are invited to participate in the examination, but only members of the committee may vote.

All committee members must be present at the dissertation defense. No changes may be made to the committee membership later than 30 days prior to the scheduled Dissertation Defense. Any exceptions to this rule must be approved in writing by the department Chair. It is the committee chair's responsibility to ensure fair and appropriate conduct of the dissertation presentation, oral examination, and grading.

The Dissertation Defense consists of two parts: (1) an oral presentation of the dissertation, and (2) an oral examination of the student's knowledge base and skills. The oral presentation should take the form of a professional talk accompanied by Powerpoint slides and should not exceed 45 minutes. Other faculty, students and members of the general public may attend the oral presentation and ask questions. The oral examination follows the presentation and is conducted exclusively and in privacy by the dissertation committee. This comprehensive examination assesses the candidate's competency in the discipline of epidemiology and is not limited to the dissertation topic. When the oral

presentation and examination are complete, the committee chair asks the candidate to leave the room and the committee votes on a grade and specifies any required revisions to the written dissertation. To satisfactorily pass the dissertation defense, a student may not receive more than one unfavorable vote from a member of the dissertation committee. A written report stating the outcome of the examination and signed by each examiner will become a part of the student's record. Failure to pass the Dissertation Defense may result in the student being dismissed from the doctoral program with an MS degree.

The final written dissertation must adhere to the School of Graduate and Interdisciplinary Studies guidelines and be completed and approved by the committee and submitted to the Graduate School at least 30 days in advance of the graduation date for the semester.

Students are generally expected to complete their dissertation in no less than one year, and no more than four years, after entering doctoral candidacy. Extensions in time may be granted per Graduate School guidelines.

### **Doctoral competencies**

To graduate, a student in the PhD concentration in Epidemiology must maintain a GPA of 3.0 and demonstrate the following competencies through their coursework, dissertation, and oral examination:

1. Thorough understanding of the history, philosophy, and theory of epidemiology
2. Mastery of experimental and observational study designs and the ability to identify optimal designs for specific hypotheses
3. Ability to design and operationalize a sound epidemiologic research study including:
  - Formation and leadership of multidisciplinary teams
  - Staffing, budgeting, funding mechanisms and grantsmanship
  - Subject recruitment, retention and tracking
  - Data quality control and data safety management
  - Questionnaires and biomarkers for health status, exposure and susceptibility
  - Appropriate statistical methods for evaluating risk and prognosis
  - Research ethics and regulations
4. Mastery of epidemiologic statistical methods
5. Expertise in one or more epidemiologic specialty such as nutritional, molecular, genetic, cancer, or chronic disease epidemiology
6. Ability to critically evaluate published epidemiologic literature
7. Professional quality peer-review, oral and poster presentations, reports and manuscripts
8. Appropriate mentoring of junior-peers

# **GENERAL UNIVERSITY INFORMATION**

## **UNIVERSITY ADMINISTRATION**

General university administration can be found at the main university website <http://www.louisville.edu>. Information about the University central administration, financial aid office, bursar's office, can all be accessed through the main university website.

## **IDENTIFICATION CARDS**

U of L identification cards will be issued during new student orientation. Lost identification cards must be reported as soon as possible to the Cardinal Card Office <http://www.louisville.edu/campuscard>. All found Cardinal Cards should be immediately returned to the Campus Card Office. If you have lost your card or it has been stolen, contact the Campus Card Office at (502) 852-7520 to see if you're Cardinal Card has been turned in. If you have a meal plan, immediately contact the Campus Card Office to have a hold placed on your meal plan account to restrict further use. If you have used your card at the University Libraries you should also alert them of the missing Cardinal Card. If the theft occurred on campus, it should be reported to the Department of Public Safety at (502) 852-6111.

## **INCLEMENT OF WEATHER**

In the event of inclement weather please listen to local radio and television stations to determine if the U of L campus is open. The U of L website <http://www.louisville.edu> and telephone information line (502-852-5555) broadcast delays or closings. If U of L employees are sent home due to inclement weather during the course of a work day then the campus will remain closed during evening hours.

## **PARKING**

Please refer to the website below for parking requirements and information [http://www.louisville.edu/admin/dps/parking/parking\\_home.htm](http://www.louisville.edu/admin/dps/parking/parking_home.htm)

## **EMAIL AND BLACKBOARD**

**NetMail** This is an email account assigned to every student at the university. NetMail is a basic email program; you can send and receive email, add attachments and save and sort your mail. It is virus protected. **NetMail is where you will receive important information from the university or your professors and you are REQUIRED to use it if you are taking an online class.**

To access NetMail go to: <https://www.netmail.louisville.edu/>. Log in using **userID** and **password** the click **Start Netmail**.

Students within the MS/PHD Program will also have **GroupWise** email accounts.

## **COUNSELING SERVICES**

Counseling services are available to all full-time students through the UOFL Student Mental Health Services. These services offer personal assessment, short-term individual counseling, crisis intervention, and referral for psychiatric services or long-term

counseling. They are available to help students.

<http://campuslife.louisville.edu/counseling/>

### **COURSE REGISTRATION**

The University of Louisville uses a touch-tone and an on-line web registration system.

The schedule of courses for each term may be reviewed at

<http://htmlaccess.louisville.edu/classSchedule/setupSearchClassSchedule.cfm>. A

student must participate in touchtone or on-line web registration. No in-person registration is permitted.

**Students must first contact their assigned MS/PHD Advisor to discuss course selections.**

- If a student is in good academic standing and admitted UNCONDITIONALLY, he/she may proceed with the registration process. If, however, a student has conditions on his/her admission or is on academic probation, he/she must contact the Graduate Dean's office for further instructions;
- A student may add courses through the touch-tone or on-line system through the first day of classes;
- Students may also drop or withdraw from courses by touch-tone or on-line.

For more formation, consult: <http://www.louisville.edu/student/services/registrar>.

Within SPHIS, the Student Services addresses all items pertaining to the registration process for all degree programs housed at SPHIS.

### **STUDENT RECORDS**

The privacy and confidentiality of all student records are preserved in accordance with applicable laws and the Universities records policy. All official student records are housed in and maintained by the Student Services at SPHIS.

### **UNIVERSITY LIBRARIES**

The University library system consists of the Main Library, the Fine Arts Library, the Law Library, the Music Library, the Health Sciences Library, the Engineering, Physical Science, and Technology Library and the University Archives and Records Center. The libraries' collections are accessed through the Minerva online catalog at:

<http://library.louisville.edu/>

The Kornhauser Health Sciences Library, located in the downtown medical center on the Health Science Center campus, is a Regional Resource Library of the National Network of Libraries of Medicine, representing a significant resource for the entire health sciences community of the Louisville metropolitan area and the western half of Kentucky.

Additional information on the Kornhauser library can be found at:

<http://library.louisville.edu/kornhauser>.

### **HEALTH INSURANCE**

U of L offers a Comprehensive Medical Plan to meet student health care needs. This Comprehensive plan is a major medical and hospitalization plan which has coverage for

both inpatient and outpatient services. Similar to an HMO, the Health Services Office (HSO) serves as the primary care provider and a referral is necessary for most services rendered outside of the Student Health Services. Purchase of the Comprehensive Plan provides coverage for physician visits at the HSO which has two clinical locations.

To be eligible for coverage under the Comprehensive Plan, students must be one of the following:

- an undergraduate student taking 6 or more credit hours
- a graduate student taking 3 or more hours or degree candidate,

GTA, GTS and GRA students receiving a stipend check from the University receive the Comprehensive Plan coverage as a benefit of their employment. If you believe you are eligible for this benefit please check with your department to verify coverage.

Dependents of insured students are eligible for the Comprehensive Medical benefits for an additional premium. Insured spouses are eligible for coverage at the HSO facilities. Children under the age of 18 are not eligible for the Health Services benefit and cannot be seen in the HSO.

The Belknap HSO is located on the main Campus, 2207 South Brook Street, in the Student Health & Counseling Building, between the Student Activities Center and the Post Office. The Health Sciences Center HSO is located at 550 South Jackson Street, Ambulatory Care Building (ACB) 1st Floor.

For more information and appointments, please call the Belknap Office at (502) 852-6479 or the HSC Office at (502) 852-6446. The Insurance Advocate can be reached at (502) 852-6519.

### **DIVISION OF STUDENT AFFAIRS**

The mission of the division of Student Affairs is to provide students with effective services and developmental opportunities that augment their academic experience and enhance the quality of their lives while enrolled at the University of Louisville. The Vice President for Student Affairs, located at 203 Grawemeyer Hall, administers and oversees non-academic services and programming for students.

The Division of Student Affairs includes: *Student Services* Student Services Administration, Admissions, Orientation, Testing Services, Financial Aid, Registrar, Enrollment Systems, Commencement, Residency, and Student-Athlete Certification.

*Student Life* Housing and Residence Life, Intramural and Recreational Sports, Student Activities, Greek Life, Recognized Student Organizations, Student Government Association, ACCESS (Adult Services), Service Learning, Swain Student Activities Center Administration, Student Disciplinary Services, Counseling Center, Career Development Center, and International Service Learning Program.

### **DISABILITY RESOURCE CENTER**

The Disability Resource Center coordinates services and programs for students and prospective students with disabilities. Accommodations and support services are

individualized, depending on the needs of each student. Services and programs are designed to assure access for qualified students with disabilities to all programs and activities of the university. Students are strongly encouraged to make contact with the Disability Resource Center upon program acceptance to assure adequate time to implement support services.

## **UNIVERSITY (U OF L) GRADUATE STUDENT POLICIES**

### **ACADEMIC POLICIES, PROCEDURES AND REQUIREMENTS**

The general policies, procedures and requirements are outlined in the U of L Graduate School Catalog. These requirements must be consulted, so that the graduate student may be fully apprised of the conditions he/she must meet in order to receive a MS/PhD degree.

The policies and regulations described in this handbook and the Graduate School catalogue cannot be superseded or invalidated by either oral or written agreement with faculty, staff, or administrators, unless such agreement is confirmed in writing by the Dean of the Graduate School.

***SPECIAL NOTE:*** Students are **STRONGLY** encouraged to read and familiarize themselves with the Graduate Catalog. The catalog can be found at <http://graduate.louisville.edu/catalog>.

### **UNIVERSITY RULES AFFECTING STUDENTS.**

Rules and Policies affecting students are published in the Student Handbook at: <http://campuslife.louisville.edu/cloffice/handbook/>. Included in the Student Handbook are the following: Academic Grievance Procedure, Code of Student Conduct, Code of Student Rights and Responsibilities, Policy on Consumption of Alcoholic Beverages for Recognized Student Organizations, Hazing and Initiation Activities Policy, Non-academic Grievance Policy and the Sexual Harassment Policy. Several items will be covered in detail during New Student Orientation.

### **STUDENT RESPONSIBILITY/HONOR CODE**

Enrollment in the various graduate programs constitutes a commitment to abide by the practices and regulations of U of L as stated in catalogs or other published material. Enrollment also constitutes acceptance of the responsibility to know all academic requirements and a commitment to abide by the Honor Code as published in the U of L Student Handbook.

### **APPEALS AND GRIEVANCE**

The MS/PHD Program follows the procedures for academic grievance as published in The Redbook, Chapter 6, and Article 8. Any student considering filing such a grievance

is advised to consult with the Graduate School Student Advocate for advice and information. Information about the student grievance policies can be found at <http://www.louisville.edu/provost/redbook/contents.htm>

The Graduate School Academic Grievance Committee has the power to hear all grievances of graduate students involving academic matters other than substantive grade appeals. "Academic matters are defined as those concerning instructional activities, research activities, activities closely related to either of these functions, or decisions involving instruction or affecting academic freedom" (The Redbook, Section 6.8.3). All grievances should be pursued through the Graduate School Academic Grievance Committee. See the Graduate Student catalog for more information.

### **Student Grievance Officer**

The Student Grievance Officer is the person to whom one may bring a problem, grievance or complaint in order to receive an objective hearing. The Student Grievance Officer addresses matters of both academic and non-academic concerns. One of the major goals of the Student Grievance Officer is establishing understanding among students, faculty, staff and administrators. This service is available to all students. Voice mail is available 24-hours a day at 852-6102, but email ([joe.steffen@louisville.edu](mailto:joe.steffen@louisville.edu)) is the preferred method of contact.

### **GRADES AND GRADING POLICIES**

The graduate school utilizes a plus/minus grading system. It is at the discretion of the instructor to determine the use of plus/minus grading.

#### **C Grades.**

The student's academic department may approve six hours of coursework in which a grade of "C+, C, or C-" was received to count toward the completion of degree requirements. Approval of the Graduate Dean must be secured in order to count additional hours with any grade of C in any course required in the degree program. In no case may more than nine hours of "C" be used to fulfill graduate degree requirements.

**The MS/PHD Program adheres to this policy.**



## Other Grades

- **"W"** - means Withdrew and carries no quality points. **No student may withdraw from any course after the published drop date.** In exceptional cases, the dean may grant a student's request to withdraw from courses because of illness or conditions beyond the student's control. Poor performance is not a valid reason to grant an exception.
- **"I"** - means Work in Course Incomplete. **If the work is not completed by the end of the next term, regardless of whether the student is enrolled, the "I" automatically becomes an "F".**
- **"X"** - means course work has not been finished because of the nature of the research or study involved, e.g., thesis/dissertation work. This grade is reserved for courses that by their nature extend beyond one semester. This grade may not be used for coursework that is confined to a semester but not completed by the student.

## Academic Course Loads:

- **Full-and Part-Time Study.** Full-time study is defined as being 9 hours of credit during a regular semester or 6 hours during the summer term or in candidacy status. To be considered in full-time residency for one year, a student must be registered for 9 hours in each of two consecutive semesters.
- **Course Loads.** The maximum number of hours that may be taken in a regular semester is 12; or 15 hours if 3 or more hours are research credit. The maximum number of hours that may be taken in the summer session (both terms) is 12, including research hours.
- **Overloads.** Any student who wishes to enroll in more than the maximum number of hours ***must obtain the permission from the Director of the MS/PHD Program who will then submit the request to the Dean of the Graduate School who has final approval.*** Permission to enroll for excess hours is rarely granted.
- **Satisfactory Progress.** All graduate students are expected to make steady and satisfactory progress toward the completion of degrees. Students who fail to enroll for a period of more than 12 months will be considered to have withdrawn from the program. Students who seek to return after such a period of time are required to apply to their departments or programs for readmission. Based on the request of the department or program, the Dean of the Graduate School will consider the student for readmission.

## Transfer of Credit

Earned graduate credit may be transferred from accredited institutions that offer advanced degrees. Students may transfer a maximum of 6 credit hours provided that these additional hours are not credit earned by extension, thesis or practicum and provided also

that the residency requirement of 24 semester hours is maintained by the addition of University of Louisville credits to the total program.

The course work being considered for transfer must have been taken while the student was enrolled in an accredited graduate or professional school and must be evaluated by the Director of the MS/PHD Program. To request transfer credit students must provide course syllabi and official transcripts for each course. Only courses in which the student earned grades of "B" or better will be considered for transfer. Hours and quality points earned at other institutions are not included in the calculation of a student's GPA.

Credit earned more than five years prior to the student's application to the Graduate School of the University of Louisville will not be considered for transfer.

Courses in which grades of "P" were earned must have the approval of the Graduate Dean in order to be transferred. In case of question regarding the transferability of course work, the Graduate Council is empowered to decide.

Transfers of credit from constituent schools and colleges of the University of Louisville are not subject to the above limitations on transfers but require the recommendation of the student's department and the approval of the Dean of the Graduate School.

### **WITHDRAWAL FROM COURSES**

No student may withdraw from any course after the published drop date. In exceptional cases, the dean may grant a student's request to withdraw from courses because of illness or conditions beyond the student's control. Poor performance is not a valid reason to grant an exception.

### **WITHDRAWAL FROM PROGRAM**

Students may withdraw from the MS/PHD Program at any time and receive a proportionate refund for courses being taken during the term of withdrawal based on the *UOFL Student Withdrawal Refund Policy*. At the time of withdrawal, a student must notify the program office of the decision to withdraw. The withdrawal process will be facilitated by the program office and Student Services. Other items may be required for the completion of the withdrawal process.

### **READMISSION**

When a student has been dismissed from the program for failing to meet the academic requirements, readmission will be considered only with a recommendation from the admissions committee and program director. The student's petition for readmission should be supported by a statement from the faculty/program director that justifies a readmission decision. The statement should clearly set forth conditions that the student must meet in order to establish good standing. Students dismissed from the program for honor code violations will not be considered for readmission.

### **STUDENT LEAVE OF ABSENCE**

A student who has been accepted into a graduate program is expected to remain in continuous enrollment, either full-time or part-time, throughout his/her matriculation.

Students who fail to enroll for a period of more than 12 months will be considered to have withdrawn from the program (see above). However, if circumstances arise that may cause an interruption in graduate study, a student may apply for a leave of absence by requesting such a leave from the Dean of the Graduate School. The letter of request must indicate the dates on which the requested leave is expected to start and end. The student's request must be accompanied by a letter of support from the graduate program director or coordinator or from the department chair. A requested leave cannot exceed one year; however, under extreme circumstances, a second, subsequent request may be granted by the Dean of the Graduate School.

If a leave is granted, the student may NOT enroll in any classes, including independent study, seminars, distance learning, thesis research, or dissertation research. A student on official leave of absence is not required to pay tuition, fees, or a candidacy status fee; but is not entitled to any services from the university during the leave, including mentorship from faculty.

No degree will be granted to a student on official leave of absence. The student must re-enroll in the next term following the conclusion of the leave and be enrolled in the term in which a degree is granted. A leave of absence does not relieve a student from adherence to policies regarding residency and candidacy (except that the time limit for candidacy may be extended, as indicate in the previous paragraph).

Assistantship students are required to be enrolled full-time (nine hours in both the fall and spring semesters and six hours in the summer) in order to maintain those assistantships. Any student who drops below a full-time course load will have their assistantship pay suspended.

## **APPENDIX I**

### **DEPARTMENT OF EPIDEMIOLOGY COURSE DESCRIPTIONS**

#### **PHEP 501 Introduction to Epidemiology**

This is an introductory course in the basic science of public health and preventive medicine. Epidemiology is taught from a conceptual as well as practical perspective. The emphasis of the course is for understanding fundamental concepts of disease occurrence in human populations. This class provides a broad synopsis of disease in the United States and around the world; it includes a survey of major causes of death and leading health challenges. In the process of discussing these global, national, regional and local disease patterns, basic epidemiological methods are presented, specifically focusing on terminology, study design, and issues of contemporary practice. This class will instruct non-statistical or non-epidemiological staff in the basic skills for conversing with epidemiologists, reading the professional disease control literature, and drawing upon epidemiological concepts. The course provides instruction in the fundamentals of epidemiological research; both observational approaches and structured methods (e.g., study designs). There is a small amount of calculation involved with the course [calculators should be brought to the class]. The class is taught through lectures, in-class exercises in reading the professional literature, and on-line exercises. This course aims to provide a familiarization with principles of epidemiological reasoning and research methods while surveying trends and patterns for disease in contemporary settings.

#### **PHEP 602 Epidemiological Methods**

This is a methods course in the design, conduct, and analysis of epidemiologic research studies [a.k.a. case-control, and cohort]. Classes will be conducted as lectures. The course will provide in-depth training with skills for the design and conduct, but especially the analysis of epidemiologic research studies. The course aims to provide a thorough orientation to these fundamental epidemiological research designs in their use for hypothesis generation, hypothesis testing, and with investigations of chronic disease risks in particular. Students are expected to have a basic understanding of epidemiological and biostatistical concepts, and methods. Likewise, students are expected to have professional-caliber writing and verbal communication skills. The course will not require extensive memorization, but will involve analytic calculations and a grasp of statistical software for their graded assignments. As an advanced skills class, timeliness and product quality will be graded.

#### **PHEP 604 Epidemiology of Acute Infectious Disease**

This course will discuss the epidemiology and prevention of infectious disease, focusing on diseases of major impact to world health and emerging diseases, emphasizing the interrelationships of biology and behavior and infectious agents. It will focus on new techniques for research and changes in understanding of disease biology, susceptibility, and pathogens. It will include discussion of the social burden of disease and impact of intervention strategies.

#### **PHEP 606 Genetic and Molecular Epidemiology**

The purpose of this course is to examine basic principles of Mendelian inheritance in humans and the fundamentals of gene actions, cytogenetics, biochemical genetics and population genetics.

**PHEP 607 Epidemiology of Cancer**

This is a survey course of the descriptive epidemiology and clinical studies in practice nationally for research on cancer outcomes in the United States and Europe. The course opens with conventional training in carcinogenesis and progresses to cancer biology. Next is the litany of ‘cancer of...’ epidemiological profiles: incidence, prevalence, mortality, distribution, risk factors, high risk populations, key biological markers, priority populations, treatments, history of clinical studies/advances, active clinical trails, etc. From this foundation the class focuses on federal agency documents announcing emerging research programs, and priorities for research. The National Cancer Institute, American Cancer Society, Centers for Disease Control and select other agencies will be highlighted. The course will examine specific published literature related to the design and conduct of these studies. Attention will be given to evaluations of preventive services, clinical care and assessments of disparities related to cancer management outcomes.

**PHEP 609 Epidemiology of Chronic Disease**

This course provides an opportunity for students to address the epidemiology and prevention of cardiovascular disease, focusing on coronary heart disease, stroke, and end stage renal disease, emphasizing the interrelationships of biological and behavioral aspects. It focuses on established major modifiable risk factors for cardiovascular diseases, putative risk factors, and genetic susceptibility. It describes the social and economic burden of disease and prevention strategies.

**PHEP 611 Nutritional Epidemiology**

The purpose of this course is to examine epidemiologic methodology in relation to nutritional measures, and to review the current state of knowledge regarding diet and other nutritional indicators as etiologic factors in disease. This course is designed to enable students to better conduct nutritional epidemiologic research and/or to better interpret the scientific literature in which diet or other nutritional indicators are factors under study.

**PHEP 612 Epidemiology and Bioterrorism**

This course provides an opportunity for students to address specific methodological approaches to the detection and response to outbreaks of illness linked to biothreat agents. Topics covered depend upon student interest and faculty availability.

**PHEP 613 Epidemiology of Aging**

This course introduces the demography of aging, epidemiology of chronic disease, functional impairment, dementia, and end of life issues, emphasizing the interrelationships of biological and behavioral aspects. It focuses on theories of aging, assessment of function and disability, and healthcare. It covers perspectives of aging and its implications for individuals, families, and society. It describes the economic impact of an aging society and the impact of a national health care system. It describes ethical and legal issues in a vulnerable population.

**PHEP 615 Epidemiology of Maternal and Child Health**

Concentrating on women of childbearing age, pregnant women, infants and children from one through 21 years, this course provides an introduction to the epidemiology of the health of women and children. The course will allow students to identify the public health basis of maternal and child health, and will provide an introduction to the epidemiology of maternal and child health, data-based needs assessment, and program evaluation.

**PHEP 616 Disease Surveillance**

This course will review issues and methods in the design and implementation of disease surveillance systems. The history of public health surveillance, existing surveillance systems, national and international, for reportable infectious diseases and cancer registries will be reviewed. The course will consider novel approaches to monitoring for sentinel events, linking multiple data systems, surveillance of syndromes and other health-related conditions, and applications to bioterrorism.

**PHEP 617 Field Epidemiology**

This course will focus on the practical aspects of doing field epidemiology, including topics such as: the organization of teams and methods for detecting and investigating disease outbreaks; data collection methods, including the collection, transport, and storage of biological and environmental samples; data analysis using Epi Info, GIS, and other statistical packages; interpretation and communication of findings to public health authorities, the press and general public; intervention, follow-up and evaluation methods; and ethical and legal issues.

**PHEP 618 Epidemiologic Methods II**

This course reviews epidemiologic methods including stratified and logistic regression analysis, survival and proportional hazards modeling and strategies for model building in multivariate analysis.

**PHEP 619 Biology of Disease in Populations**

This course provides an overview of the biology and basic pathophysiology of common acute and chronic diseases and conditions from the epidemiologic perspective.

**PHEP 620 Environmental and Occupational Epidemiology**

The course offers an overview of selected topics in environmental and occupational epidemiology and methods for studying environmental and occupational determinants of disease. This will be presented in the context of studies of specific health outcomes, such as cancer, non-malignant respiratory disease, adverse reproductive outcomes, and neurological diseases. Emphasis will be placed on the most suitable epidemiologic approaches to characterize exposure-response associations for various environmental and occupational diseases.

**PHEP 650 Advanced Topics in Epidemiology**

The purpose of this course is to provide an opportunity for students to address specific issues in epidemiology.

**PHEP 666 Thesis Research**

This course is for mentored thesis research in the MS Program in Epidemiology. Students are required to complete 6 credit hours of research that culminates in a minimum 30 page original Master's thesis manuscript.

**PHPH 679 Practicum Experience: Epidemiology**

As a central experience and requirement for the Master of Public Health degree in the School of Public Health and Information Sciences, students must complete a 6 credit hour course—260-contact-hour project—in an external health/health-related setting. This practicum experience, including a final paper or written report and oral presentation, constitutes the final examination. A site for each practicum project may be selected by

the student or by one of the School's departments. Practicum sites will be selected based upon student's major.

### **PHEP 697 Integrating Learning and Experience in Public Health**

The course is independent study for bringing together the student's studies and real-world activities in public health into a culminating experience. The student will integrate what he or she has learned in the classroom, in presentations, in informal discussions, in the practicum, and elsewhere into a paper, a poster, and a presentation. These will represent the student's practicum experience and results within the context of the concepts and techniques acquired by the student from participation in the MPH program.

### **PHEP 701 Advanced Epidemiologic Methods**

This course provides hands-on experience with advanced statistical methods in epidemiologic analysis under complex study designs and methods for critical analysis of published results and research proposals. Upon completion of this class, students will be able to:

- Describe multiple epidemiologic study designs, including matched case-control, cohort, longitudinal, family and sib designs, and clinical trials.
- Apply and appropriately interpret results from multivariate Cox Proportional Hazards analyses with time-dependent covariates
- Apply and appropriately interpret results from polytomous and ordinal logistic regression models
- Apply and appropriately interpret results from statistical analyses of familial and sib study designs, including tests of linkage and association.
- Demonstrate understanding of the principles and methods of application of meta-analysis of results from several epidemiologic studies
- Provide thorough, critical analyses of three or more published epidemiologic studies to be selected by the instructor
- Demonstrate understanding of the principles for critical review of an NIH-format epidemiology research proposal
- Demonstrate understanding of disease biology in study design, analysis, and critical review

### **PHEP 702 Epidemiologic Research Management**

This course provides a comprehensive introduction to the practical methods necessary for conducting epidemiologic research including regulations, databases, sampling, recruitment and tracking, instrument design, and data quality control. Upon completion of this class, students will be able to:

- Describe various methods and sources for ascertaining cases of specific diseases or health related conditions for epidemiologic research, and their respective strengths and limitations
- Describe various methods and sources for sampling or selecting healthy controls, and their respective strengths and limitations
- Describe methods for recruiting and enrolling participants in population-based observational studies and clinical trials, and their respective strengths and limitations

- Describe methods for tracking subjects for follow-up in prospective studies, retention, and compliance with procedures in both observational studies and clinical trials
- Explain the consequences of problems in each of the above with regard to internal and external validity of study findings
- Develop and pilot test a questionnaire for participant or interviewer administration
- Design forms for tracking, recording, and monitoring quality control in the collection of study data from different sources, including questionnaire, physical exam, medical record, and laboratory, using computer systems
- Develop a manual of procedures for a specific study design
- Demonstrate understanding of human subjects research regulations, privacy laws, and research ethics

### **PHEP 750 Seminars in Epidemiology**

Doctoral students engage with faculty as junior-peers to develop skills such as research proposal writing, grant budgeting, peer review, manuscript preparation, oral and poster presentation. The content of this course will vary from semester to semester based on the instructor and needs of the students. In general, upon completion of this class, students will be able to:

- Demonstrate ability to interact with faculty and peers in a professional manner
- Display accurate and appropriate understanding of human research ethics and regulations
- Form a research team with 2 or more students and develop a complete NIH-formatted "mock" research proposal, including budget, personnel, research environment, and research plan
- Provide one publication-quality research manuscript that provides: (1) a useful review of epidemiologic literature for a disease; (2) a critical review of epidemiologic methods; or, (3) results from a primary or secondary analysis of data
- Present one poster or oral presentation
- Discuss and critically review recently published research on "hot topics" in epidemiology

### **PHEP 778 Mentored Readings & Research in Epidemiology**

This course gives students the opportunity to explore in greater depth selected, specialized topics in epidemiology, to conduct readings and research on these under the supervision of a faculty mentor, and to develop ideas that may lead to a dissertation proposal. Students must identify a faculty mentor and develop a course proposal that includes a detailed syllabus with defined deliverables, a timeline, and methods of evaluation and grading. Both the student and advisor must sign contracts describing their specific expectations and duties and the proposed course must be completed within 90 days after approval by department chair.



## COMPLETING YOUR DEGREE

### TIPS FOR A SUCCESSFUL GRADUATE EXPERIENCE

#### **Your Courses**

As you proceed through the Master or PhD program, the department administrator will track your coursework to ensure that all the degree requirements are being fulfilled. A checklist of courses is maintained for every student, and this list is updated as grades are posted and courses are completed. The best way to ensure that your course requirements are being fulfilled is to **be advised by your department Advisor**. This way, you won't take unnecessary courses and you can get any help you might need. As you near your final semester in the program, it is especially important to be advised by department faculty, as they can make sure that you have taken all the courses and completed all the paperwork you will need to begin your thesis or dissertation.

#### **Your Thesis or Dissertation**

When you are ready to begin your final semester, you will need to register for PHEP 666 if you are in the MS program and PHEP 778 if you are in the PhD program. You will need to submit a "Thesis/Dissertation Advisory Committee" form to the Graduate School, which you can get from the Department of Epidemiology and Population Health assistant or at <http://graduate.louisville.edu/thesisdissforms.htm>. This form asks for the signatures of those faculty members you want to be on your thesis or dissertation committee. You will need to choose a Principal Advisor (Epi Faculty or Associate member) and four more, two members must be from the Department of Epidemiology, one member must be from another department in the SPHIS and one from a unit outside the department & School. The Principal Advisor must be a Senior Member of the UofL Graduate Faculty, and the other members of your committee must be members of the Graduate Faculty (each faculty member should know if they have or have not been approved as Graduate Faculty). This form must be signed by the Department Chair and a copy of the form given to the DEPH Assistant.

Once you have finished your thesis or dissertation and are ready to defend, it is Department policy that all faculty and students of the Department of Epidemiology and Population Health be invited to attend your defense. **This defense shall be scheduled at the convenience of the members of your committee.**

The University of Louisville and the Graduate School have *very* specific rules regarding the format and presentation of thesis and dissertation submissions. Information on these rules can be found at [www.graduate.louisville.edu](http://www.graduate.louisville.edu). You will need to schedule your thesis or dissertation defense day and time with your committee members. Once approved by the Department Chair, the Department Administrative Assistant will submit a "Thesis/Dissertation Final Oral Examination Schedule" form to the Graduate School no later than two weeks before the scheduled date of your oral defense. Your committee

should be given sufficient time to complete its review of your thesis or dissertation at least one month prior to the final oral defense.

### **Your Degree**

Be sure to fill out an “Application for Degree” at the beginning of your last semester. These forms can be found at the Graduate School on Belknap Campus in either Jouett Hall or the Houchens Building, or can be obtained from the Department of Epidemiology and Population Health assistant. The form must be submitted to the Graduate School by the due date posted for the respective graduation semester. Future deadline dates can be found on the Graduate Academic calendar at

<http://www.louisville.edu/ur/onpi/infoctr/undergrad.htm> .

For any questions or concerns you might have during the semester you plan to graduate in, your best resource is the Graduate School. The Department of Epidemiology and Population Health faculty and staff are also here to advise and assist you with any questions you might have.