Course Syllabus

PHS650- Special Topics in Environmental Health Epidemiology

Instructor (s): Kristen Malecki, PhD, MPH.
Assistant Professor, Population Health Sciences

Guest Instructors/Lecturers: Dr. Marty Kanarek

Proposed Days/Times: Fridays: 12:30-2:00 P.M.

Room Location: WARF 758

Credits: 1

Course Dates: January 24, 2014- March 14, 2014 (first eight weeks of Spring Semester)

Course Eligibility: Intended for Population Health Sciences or Epidemiology, or Environmental Health student with at least one introduction to epidemiology (PHS 797) and concurrent or having already taken PHS 798 (or equivalent). Instructor approval required.

Course Overview:
Environmental epidemiology is a dynamic interdisciplinary field serving as a cornerstone for addressing some of the most pressing public health problems of our time from infectious to chronic disease. The overall goals of this course are to introduce students to different aspects of environmental epidemiology while simultaneously providing students tools to think critically about how to read, review and critique peer reviewed literature and opportunities to apply these tools to environmental health studies. Each week students will participate in a 1.5 hour discussion of a selected peer review journal articles relating to a traditional (air pollution and cardiovascular disease) or emerging (epigenetics, social and built environment, climate change) environmental health topic. The articles will be chosen based on their representation of either a unique study design (e.g. time series) or method for assessing and exposure (e.g. biomonitoring; modeling via land use regression). Students will be asked to lead the discussions using a guided set of discussion questions. The instructor will support discussions, serve as a facilitator and provide guidance to ensure certain topics/elements and key elements of the review are identified by the end of the weekly discussions. Through class discussion, weekly written assignments and journal selection and critique, students will have the opportunity to learn and apply key peer-review skills. Throughout this hands-on process students will also increase their understanding of environmental epidemiology as a field and gain insight into the strengths and limitations of certain epidemiologic study designs in answering new and emerging environmental health questions.
Overall Course Objectives:
The overall goals are to introduce students to the diverse field of environmental epidemiology, highlight how core epidemiologic principles are applied to studies relevant to environmental health, discuss different methods for exposure assessment a critical and often unique aspect of environmental epidemiology. The course will also provide hands on training in conducting a systematic critique of peer reviewed literature through journal article readings and discussions. This will be an interactive class. Over eight weeks, articles will be chosen by the instructor and students that will introduce students to a variety of current and emerging environmental epidemiology topics (air pollution, children’s health, legacy pollutants, plastics, climate change). Articles will be selected to represent different study designs (e.g. time series, longitudinal, cohort, case-crossover) and/or utilize unique or novel exposure assessment methods (e.g. biomonitoring data or modeled NASA based data for exposure measures and/or spatial statistics).

Specific course learning objectives:
A. Identify key study designs used to explore a variety of questions related to environmental heath.
B. Become familiar with the range of various methods and approaches to environmental exposure assessment in environmental epidemiology and their strengths and weaknesses.
C. Gain experience in providing both oral and written critiques of scholarly research applying a standard set of review criteria and core epidemiologic principles to think critically, and evaluate strengths and weakness of peer-reviewed studies.