

University of Southern California, Keck School of Medicine
(PM558) Environmental Epidemiology: Concepts, Methods, and Practice
Fall 2015
Mondays; 9:00am-12:30pm
Health Sciences Campus, Soto Street Building, Rm# 117

Instructors

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Course Description:

This course is designed for graduate students who will engage in conducting population research, managing professional projects, or interpreting epidemiologic data for environmental public health research and practice. The class activities include lectures and case study seminars with class discussion. Through the structured lectures, students are introduced to epidemiologic concepts and methods applied to evaluation and control of the broad health consequences of human-environment interactions involving various physical (e.g., hazardous pollutants; sunlight) and social environments (e.g., violence; policies). Drawing on the "case-based teaching" with learning modules carefully selected from current literature (biomedical, public health and social sciences), the case study seminars aim to help the students bridge the connection between fundamentals of study design (e.g., cohort, case-control, case-cohort, case-crossover, time-series, panels), principles in epidemiologic methods (e.g., confounding, selection bias, measurement errors, interactions), and sophisticated data analyses/statistical modeling approaches (e.g., propensity score matching; semi-Bayes analyses of correlated exposures; instrumental variables). Selected practice examples covering chemical, physical, biological, and social factors implicated in the pathogenesis and progression of human diseases and public health promotion will be discussed. After completing this course, students are expected to be able to critically review epidemiologic literature on environments and health and also to demonstrate the capability of applying epidemiologic concepts and methods for studying environmental factors of scientific interests and public health significance.

Pre-requisites: None; Recommended preparations: PM510 and PM512.

Course Materials

(1) Textbook:

Although not required, the following is "recommended" text which covers the fundamental reading materials for environmental epidemiologic principles and exposure assessment.

Title: Environmental epidemiology: study methods and application. Baker D and Nieuwenhuijsen MJ (eds), Oxford University Press, 2008.

(2) Selected papers and other supplementary documents:

To be assembled and posted on the Blackboard.

(3) Lecture slides:

To be posted on the Blackboard.

Student Evaluation

Class Participation: (20%)

Students are expected to attend and participate in all classes. Class discussions are an important learning component of PM558. In addition to participating in class discussions during the lecture sessions throughout the course, each student needs to sign up as the seminar facilitator for two case studies.

Seminars typically focus on critique and interpretation of published scientific papers in environmental health research and practice. The discussion facilitators could follow the critique form of the case studies that has been very well outlined, but there will be no restrictions on the form of leading case-study seminar, as long as it is agreed by group members (in case of more than one presenters) and not violating any University/School regulations. Examples may include **designing a jeopardy game or a word search contest based on epidemiologic terms to be used in the critique, acting in a play that uses the relevant epidemiologic languages, creating a debate platform using the paper as the context, developing a teaching module, or simply delivering a guest lecture for the subject matter covered in the paper.** Facilitators must read the assigned materials thoroughly, identify key issues in consultation with the instructor in advance of the seminar, and lead the class discussions.

Home Work (80%)

There will be eight written homework assignments, one for each case study seminar following outlines indicated in the *Case Study Critique Form* (posted on the Blackboard under “Assignments”). Each assignment is due at the start of class. For students expecting to miss a class, the assignment is due before class. **No assignment may be handed in late without substantial penalties.** Students are encouraged to work together in groups to discuss the homework readings, but all must individually write their own answers to each homework assignment. **Assignments will be graded up to 100 points (Format: All homework assignments must be in 10 point or larger font [larger is better] and 2 pages or less, using at least 1 inch margins and single spacing).**

Final Grading

The overall course grades will be based on the weighted average of student’s performance in each of the above-mentioned categories. (A: 95-100; A-: 90-94.9; B+: 85-89.9; B: 80-84.9; B-:75-79.9; C: 70-74.9; D: 60-69.9; F: <60)

STATEMENT FOR STUDENTS WITH DISABILITIES:

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to the course instructor as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m.–5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.

STATEMENT ON ACADEMIC INTEGRITY:

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one’s own academic work from misuse by others as well as to avoid using another’s work as one’s own. All students are expected to understand and abide by these principles. *Scampus*, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: <http://www.usc.edu/dept/publications/SCAMPUS/gov/>. Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: <http://www.usc.edu/student-affairs/SJACS/>.