CEE-154/NUTR-204: Principles of Epidemiology, Fall 2008
Instructor: Mark Woodin; Email (best way to reach me): mark.woodin@tufts.edu.
Tufts phone: 617-627-3640 (be sure to leave message on voice mail if I am not in)

You can also leave a message at my home phone number. When you leave a message, please
briefly state the nature of the problem, best time to return your call, and the number. I guarantee a
return call or email ASAP. If you leave a message with one of my children, don’t delude yourself.
It’s a 50-50 proposition at best that I’ll get the message. Just call back.

Office Hours: Graduate classes are very heterogeneous in terms of schedules, so there is no time that I
could pick for office hours that would be convenient for even a majority of students. I think it is best,
therefore, to meet with students by appointment. Also, I can remain at Tufts after class (and am usually
in my office 60 minutes before class) if students have questions. Of course, email is always available.

Course Description: The class will consist primarily of lectures. Some areas of the lectures will be
highlighted using assigned readings.

Course Objectives: Upon successful completion of this course, students will be able to:

1) Know how to calculate and interpret important rates and measures used in epidemiology
   and how to construct confidence intervals around these rates and measures;
2) Understand in general the various strengths and weaknesses of the major types of
   epidemiologic studies;
3) Identify the three major causes of erroneous conclusions in epidemiologic research and
   how each one can be adjusted for or avoided;
4) Use and interpret several statistical techniques commonly used in epidemiology;
5) Read and critically evaluate epidemiologic articles;
6) Communicate the findings and validity of an individual epidemiologic investigation.
7) Learn how screening is employed in public health, including the basic measurements used
   to evaluate screening tests and the biases that can affect the accuracy of reported screening
   efficacy.

Course Grading: There are two parts to the final grade:

1) Homeworks. There will be four homework assignments, each worth 100 points. You may work on
   the homeworks in teams of 2-4 but, if you do, please just turn in one completed assignment with the
   names of all team members on it.
2) Study critique. To provide practice in interpreting the epidemiologic literature you will do a study
   critique assignment. Using the outline on TUSK (as well as example critiques that will be posted) write
   a study critique of an epidemiologic article of your choice. Articles that are case-control, cohort, or
   randomized studies are always fine to critique. Other types of articles should get my approval. The
   critique is worth 100 points.

Textbook: Either Essential Epidemiology or Epidemiology: Concepts and Methods, both by William
Oleckno, can be used. When chapter numbers differ, EE = Essential Epidemiology and ECM =
Epidemiology: Concepts and Methods will be used in the syllabus.
Tentative Schedule (numbers in brackets refer to relevant text chapters):

9/4: Introduction and discussion of course requirements and objectives. Some historical epidemiology. What is epidemiology? Cause and the causal “pie.” Causal criteria. The three main epidemiologic measures of occurrence: prevalence, risk (cumulative incidence), and incidence. Confidence intervals. Constructing and interpreting 95% CIs. [1-3, 5, 7]

9/11-
9/18: Other measures of occurrence. Patterns of occurrence. Difficulties in interpreting occurrence measures. Measures of association and attributable measures used in epidemiology: relative risk, rate ratio, odds ratio, chi-square, attributable risk, attributable risk percent, population attributable risk, and population attributable risk percent. Age-adjusted rates. Epidemiologic tables. [Read 6 by 9/9].

9/25-
10/2: Confounding and effect modification in epidemiologic studies. Handling confounding and effect modification. [8] Homework 1 is due on 9/23 by 10:00pm.

10/9-
10/16: Introduction to epidemiologic studies: Goals. All types of descriptive studies. Analysis and biases in descriptive studies. [EE 10, ECM 9] Homework 2 is due on 10/20 by 10:00pm

10/23-
10/30: Cohort studies. Biases in cohort studies. [EE 12, ECM 11]

11/6-
11/13: Case-control studies. Biases in case-control studies. [EE 11, ECM 10]

11/20: Randomized studies. Biases in randomized studies. [EE 13, ECM 12]

Homework 3 is due on 11/25 by 10:00pm

No class on 11/27 (Thanksgiving Break).

Note: For all study design lectures, sample size calculations will be provided and examples of all study designs will be presented in lecture and through assigned readings that we will discuss in class. Also, you can read and refer to chapter 4 (both books) anytime. Chapter 4 provides a good summary of the various epidemiologic study designs that we will cover in class.

12/4: Screening in public health. Advanced uses of sensitivity and specificity data. EE 9, ECM 13]

12/14: Study critique is due by 10:00pm.

12/18: Homework 4 is due by 10:00pm.