

## Course Syllabus

Adjunct Professor : Julie Buring

Course	Epidemiology		
Credit	1	Method of Teaching	Lecture

### Objective

The objective of the course is to provide students with a solid understanding of fundamental epidemiologic principles and methods, and to demonstrate how to apply them to evaluate public health questions as well as to critique the epidemiologic and clinical literature.

By the end of the course, students should be able to:

1. Understand the basic principles and methods of epidemiology, including epidemiologic study design options (descriptive and analytic); interpretation of an epidemiologic study (association vs causation; chance, bias, and confounding); measures of disease frequency and measures of association; and special topics like effect modification and power/sample size.
2. Understand the role of epidemiology as a basic science for public health and clinical medicine, to provide a quantitative approach to addressing clinical and public health problems.
3. Become a more informed consumer of the public health and medical literature, in order to evaluate the development and testing of hypotheses regarding possible risk factors for an outcome.

### Outline

The major topics to be covered include the following. Concepts will be discussed through critical review of the biomedical and public health literature.

- **Epidemiologic Design Strategies:** Characteristics, strengths, and limitations of each study design, including descriptive studies, observational studies (case-control and cohort), and randomized clinical trials.
- **Interpretation of Epidemiologic Studies:** Concept of association vs. causation; alternative explanations for study findings (including chance, bias and confounding); positive criteria for causality; effect modification.
- **Measures of Disease Frequency and Measures of Association:** Characteristics of basic measures of disease frequency (prevalence, cumulative incidence, incidence rates) and association (relative and absolute measures), as well as the use, interpretation, and interrelationship of these measures.

**Class Schedule (90 minutes each)**

1. Introduction and Course Objectives (6 Jan Sunday 9:00-10:30)  
Overview of Epidemiologic Study Designs
2. Seminar 1: Identification of Epidemiologic Study Designs (6 Jan Sunday 11:00-12:30)
3. Interpretation of Epidemiologic Studies (7 Jan Monday 9:00-10:30)
4. Seminar 2: Interpretation of Study Findings (7 Jan Monday 11:00-12:30)
5. Measures of Disease Frequency and Association (8 Jan Tuesday 9:00-10:30)
6. Seminar 3: Critique of an Epidemiologic Study (8 Jan Tuesday 11:00-12:30)
7. Special Issues (9 Jan Wednesday 9:00-10:30)
  - Confidence Intervals; Power and Sample Size
  - Effect Modification
8. Randomized Trials (9 Jan Wednesday 11:00-12:30)

*We may add seminars by Japanese teachers for each to assist students with difficulty in language/background knowledge*

**Text**

Hennekens CH, Buring JE. Epidemiology in Medicine. Boston; Little, Brown and Company. 1987.

**Related readings**

Will be provided.

**Achievement evaluation**

Students are expected to attend all classes, read the course material before coming to class, and actively engage in course discussions.

There will be a written final exam after the completion of the course.