Course Syllabus

Visiting professor : Murray A. Mittleman

Course	Epidemiology		
Credit	1	Method of Teaching	Lecture and Seminar

Objective

The objective of this course is to provide students with a solid understanding of fundamental epidemiologic principles and methods and to apply them to evaluate public health questions and develop skills in critiquing the epidemiologic and clinical research literature. The course will be taught with an emphasis on epidemiologic measures, study design and identification of bias including control of confounding.

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

1. Understand the basic principles of epidemiology, including how to calculate and interpret measures of disease frequency and association; epidemiologic study designs for descriptive and analytic studies; how to interpret results from epidemiologic studies including cohort and case-control designs

2. Understand the concepts needed to identify sources of bias that may arise in epidemiologic studies including confounding and selection bias

3. Be an informed consumer of the public health and epidemiologic literature

Outline

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) with a focus on the use, interpretation, and relationship between these measures.

Epidemiologic Study Design: Characteristics, strengths and limitations of each of the major study designs including descriptive and analytic studies with a focus on cohort and case-control approaches.

Sources of Bias and Heterogeneity in Epidemiologic Research: Core concepts of confounding, selection bias, and recognizing the presence of effect measure modification on the additive and multiplicative scales.

Class Schedule (90 minutes each)

Day 1 (January 17, 2026)

1. Lecture: Measures of disease frequency and association (13:05-14:35)
2. Seminar: Measures of disease frequency and association (14:50-16:20)

Day 2 (January 18, 2026)

3. Lecture: Study design overview and cohort studies (13:05-14:35)
4. Seminar: Cohort study critique (14:50-16:20)

Day 3 (January 19, 2026)

5. Lecture: Case-control study design (13:05-14:35)
6. Seminar: Case-control critique (14:50-16:20)

Day 4 (January 20, 2026)

7. Lecture: Confounding and Selection bias (9:00-10:30)
8. Lecture: Effect measure modification (10:45-12:15)

Examination (January 20, 2026): (14:00-15:30)

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

Text

Rothman KJ, Huybrechts KF, Murray EJ. Epidemiology: An Introduction (Third ed.) New York, NY: Oxford University Press, 2024 (Print ISBN: 9780197751541; Online ISBN: 9780197751572).

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.