Epidemiology Exemption Exam

What is Epidemiology?

Epidemiology is the study of the distribution of health, disease, and injury in the population and the factors that influence that distribution. Epidemiology and epidemiologic methods are central to public health, being used to describe and explain the distribution of health, disease, and injury; plan the delivery of health services; develop and test the effectiveness of interventions intended to improve health and prevent disease and injury; and set priorities, among other uses. While epidemiology and epidemiologists rely on biostatistical theory and methods to plan, analyze, and interpret the results of epidemiologic studies, epidemiology and biostatistics are distinct and separate disciplines.

Exemption Exam

Because of its centrality to public health, epidemiology is considered a "core discipline" by the Council on Education in Public Health (which accredits Schools of Public Health), and all MPH students are required to have and demonstrate competence in epidemiology in order to receive their degree. At the University of California, Berkeley, there are three options for meeting this requirement: PH 250A (Epidemiologic Methods I), PH 250B (Epidemiologic Methods II), or passing of the exemption exam. As is the case with biostatistics, the epidemiology exemption exam is exactly that – an exemption exam, not a placement exam. You should not take the exemption exam unless it is your intention/hope not to take either PH 250A or PH 250B. PH 250A, a three unit course offered every fall semester (and during summer session, in a condensed form), is designed to provide MPH students with the core competencies in epidemiology that have been widely agreed upon by various public health educational organizations. While epidemiologic theory and methods have mathematical and statistical underpinnings, PH 250A is taught in a largely conceptual manner, designed to appeal to and be comprehensible to MPH students with diverse subject matter interests and who may or may not have strong "quantitative" skills. Students who have taken and passed PH 250A and who decide they would like to delve into epidemiologic methods in a more quantitative fashion are welcome to take PH 250B subsequently. However, passing PH 250A is sufficient to meet the "epidemiology requirement" for receipt of the MPH, and is also sufficient to allow students to take a range of sub-specialty epidemiology courses (e.g. social epidemiology, infectious disease epidemiology, cancer epidemiology, environmental and occupational epidemiology, genetic epidemiology, etc.).

MPH students who have taken a prior introductory course in epidemiology elsewhere (e.g. while in medical school, dental school, etc.) or who desire a more "quantitative" introduction to the field may opt to take PH 250B to meet their "epidemiology requirement." (MPH students in some programs, such as the one year MPH program in Epidemiology for individuals with a prior doctoral level degree, are required to take PH 250B as their introductory course in epidemiology.) PH 250B, which is a 4 unit course offered each fall semester, is a rigorous and very challenging course that takes substantially more time, effort, and mathematical ability than PH 250A. Students who decide to take PH 250B instead of PH 250A to meet their "epidemiology requirement" should not take the exemption exam – they should simply enroll in PH 250B, after consulting with their advisor and/or the instructors for PH 250A and PH 250B. MPH students who do not wish to take either PH 250A or PH 250B must take and pass the exemption exam, which is offered during orientation week at the beginning of fall semester. The exemption exam is a three hour, open book examination; a grade ≥ 70 is considered passing.

Suggested references for epidemiology exemption exam:

The exemption examination, like the PH 250A course, covers the following topics:

- Measures of disease frequency (prevalence, cumulative incidence, and incidence density)
- Measure of potential impact (attributable risk exposed, attributable risk population, number needed to treat)
- Descriptive epidemiology concepts (person, place, time, cohort effects)
- Analytic epidemiology study designs (randomized controlled trials, prospective or retrospective cohort studies, cross-sectional studies, case-control studies, case-cohort studies, case-crossover studies, ecologic studies)
- Analysis and interpretation of biostatistical tests in the context of analytic epidemiologic studies
- Screening and its attributes (sensitivity, specificity, positive predictive value, negative predictive value)
- Bias, confounding, and effect measure modification
- Disease surveillance
- Outbreak detection and investigation

The textbook for PH 250A (and the material on which the exemption exam is based) is:

Essentials of Epidemiology in Public Health by Aschengrau and Seage, 2nd Edition (2007), publisher Jones and Bennett.

The book entitled: Epidemiology, by Kenneth Rothman, (2002) Oxford University Press, may also be helpful.

If you have questions about the Epidemiology exemption exam, you should contact Janene Martinez at jcarolm@berkeley.edu