

Bootcamp in Epidemiology

Course Instructor

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Brief course description

This course intends to provide students with fundamentals of epidemiology. There are two modules, the first focuses on the key concepts and methods, the second focuses on the application of the methods and concepts in research and evaluation.

This course emphasizes the underlying concepts of the epidemiological approach, stressing study design, causal relationship; discusses the calculation and interpretation of measures of frequency, rates and proportions, association and public health impact; discusses sources of study error including the influence of chance, bias, confounding, and effect modification. Basic concepts of standardizing rates, surveillance, and screening are also introduced.

This course uses the 5th Edition of Epidemiology by Leon Gordis as the textbook. Lecturers are experienced epidemiologists in different fields of health programs, currently working at WHO, UNAIDS, the Global Fund and other well-known organizations. Examples used in the course are real and mostly current.

Module I

Course Objective

The objective of this 2-day course is to provide the participants with basic concepts and methods of epidemiology, including definitions, rates, proportions, ratios, major design, natural history of a disease, etc. There are 8 subjects, each comprising of lectures, hands-on exercises and discussion.

Target Participants

This course is designed for participants who have no knowledge about epidemiology but want to learn basics of epidemiology with intention of practical applications in international development settings. Main target participants include, 1) PhD candidates on global health at University of Geneva, who found the basic understanding of epidemiology necessary for their thesis and projects; 2) Professionals managing public health projects/grants at UN organizations, funding agencies, NGOs, private sectors, who need basic understanding of epidemiology for their project/grant management; 3) Other professionals/program managers who want to understand basic epidemiological methods behind numbers.

By the end of this training module, participants will learn:

- The definition of epidemiology and prevention/clinical practices
- The disease transmission and natural history, and measure of the disease occurrence
- Concepts on incidence, prevalence, morbidity, mortality, and their use
- How to use epidemiology in disease surveillance
- Key performance metrics of disease screening (sensitivity, specificity, etc)
- How to design epidemiology studies (cross sectional, cohort, case-control and RCTs)

Preliminary schedule

All participants are required to read pre-assigned materials and prepare a case. The case should be based on their daily work or as part of the PhD projects. The instruction for the case and pre-assigned materials will be sent to participants 10 days prior to the course.

Day 1 (April 1st 2019)

Data and time	Topic
08:30 - 09:00	Welcome Plenary
09:00 - 09:15	Introductions
09:15 - 10:15	Overview (definitions, changing patterns of health problems, and concepts on disease transmission)
10:15 - 10:30	Coffee Break
10:30 - 12:00	The Occurrence of Disease, Morbidity & Mortality
12:00 - 13:00	Lunch
13:30 - 15:00	Assessing the Validity and Reliability of Diagnostic and Screening Tests
15:00 - 15:15	Coffee Break
15:15 - 16:30	The Natural History of Disease
16:30 - 18:00	Exercises (calculation of rates, sensitivity and specificity, etc)

Day 2 (April 2nd 2019)

08:30 - 08:45	Recap of Day 1
08:45 - 10:15	Cross sectional survey, sample and population
10:15 - 10:30	Coffee Break
10:30 - 12:00	Randomized Trials
12:00 - 13:00	Lunch
13:00 - 15:00	Cohort studies
15:00 - 15:15	Coffee Break
15:15 - 16:30	Case-Control studies
16:30 - 17:00	Comparing Cohort and Case-Control studies
17:00 - 18:00	Discussion (when to implement what epidemiology studies)



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