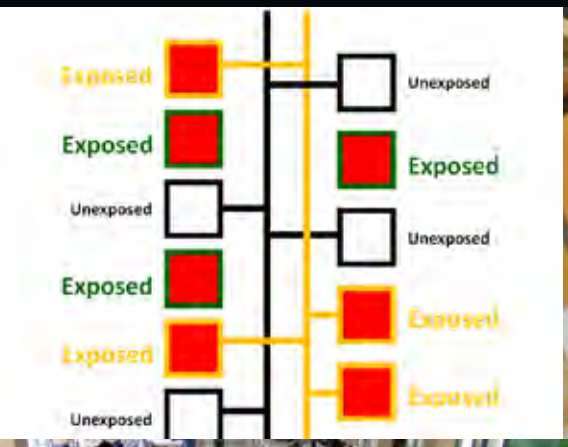
Introduction to Epidemiology for Global Health

AN ONLINE COURSE

Department of Global Health at the University of Washington



Introduction to Epidemiology for Global Health provides an in-depth orientation to the field of epidemiology for those seeking to conduct research or work on research studies in a global health context. The objective of this course is to provide participants with an understanding of how epidemiologic methods are used to understand the distribution of disease within populations and what factors affect the risk of disease.

COURSE SCHEDULE AND LEARNING OBJECTIVES

Introduction to Epidemiologic Methods and Quantitative Research

- Understand the main concepts in epidemiology
- Describe the methodological approaches to measuring diseases in populations and assessing relationships between exposures and diseases.
- Define prevalence and incidence and describe the steps to measure each in a typical epidemiologic study.

Introduction to Statistical Decision Making

- Understand how to summarize data using standard measures of location and spread
- Understand the graphical approaches to data display and how graphical displays can supplement formal statistical analysis.
- Understand how to use measures of association to investigate the relationship between exposure and disease.

Epidemiologic Study Designs

- Describe the characteristics of cohort studies, case-control studies, and randomized trials and provide examples of when each study design would be appropriate and preferred.
- Understand the differences between cross-sectional, retrospective, and prospective study designs.
- Explain how conclusions about exposure-disease relationships are drawn from different study designs.

Causation, Bias, and Confounding

- List the guideline to assess the likelihood of a causal exposure-disease relationship.
- Define bias in epidemiologic studies and describe the main categories of bias.
- Identify confounding and how to account for confounding to produce valid conclusions.

Measurement, Classification, and Misclassification

- Understand how the research question dictates how subjects are classified in terms of exposure and disease.
- Compare and contrast the impacts of non-differential and differential misclassification.
- Calculate sensitivity, specificity, positive predictive value, and negative predictive value.

Data Management Practices in Health Research

- Describe how study design will influence data management strategies.
- Give examples of data entry techniques that minimize errors.
- Outline quality control measures that can improve data quality.

Interpretation of Epidemiologic Studies and Decision Making

- Understand how to interpret the various measures of test performance.
- Describe the criteria that should be used when deciding if a screening test should be used to detect disease.

Multiple variable regression models in epidemiology

- Summarize the common regression methods used in epidemiology.
- Explain why multivariable regression models are used and how confounding is addressed..
- Provide an interpretation of the odds ratio and hazard ratio estimates produced in logistic and survival analysis models.

Qualitative Research Methods

- Describe how phenomenology and grounded theory methods can be used to address a public health question.
- Provide a data collection strategy that could be used in a qualitative research study.
- Compare and contrast quantitative and qualitative research methods.

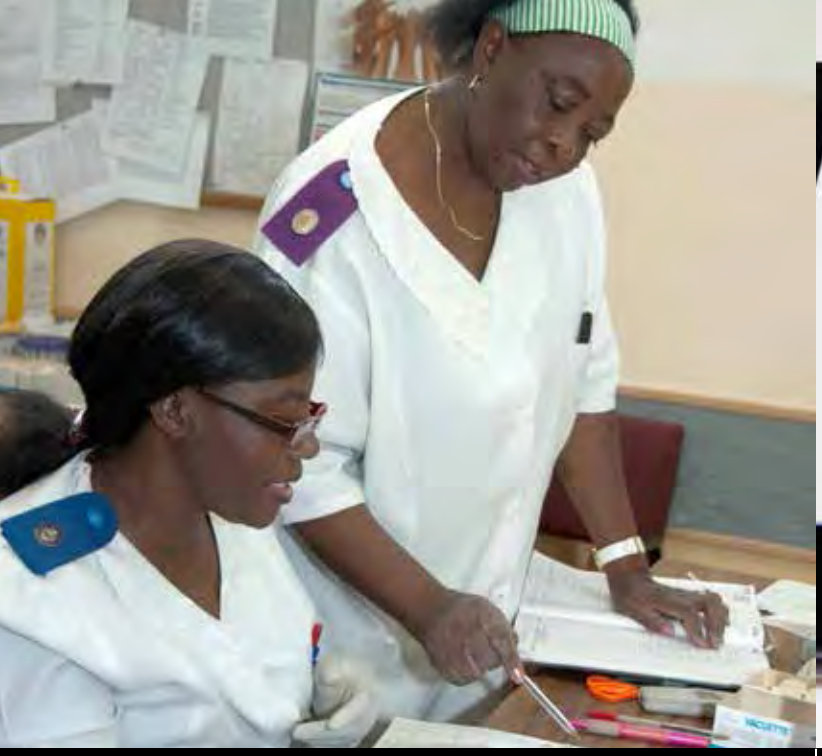
Analyzing Qualitative Data and Public Health Applications

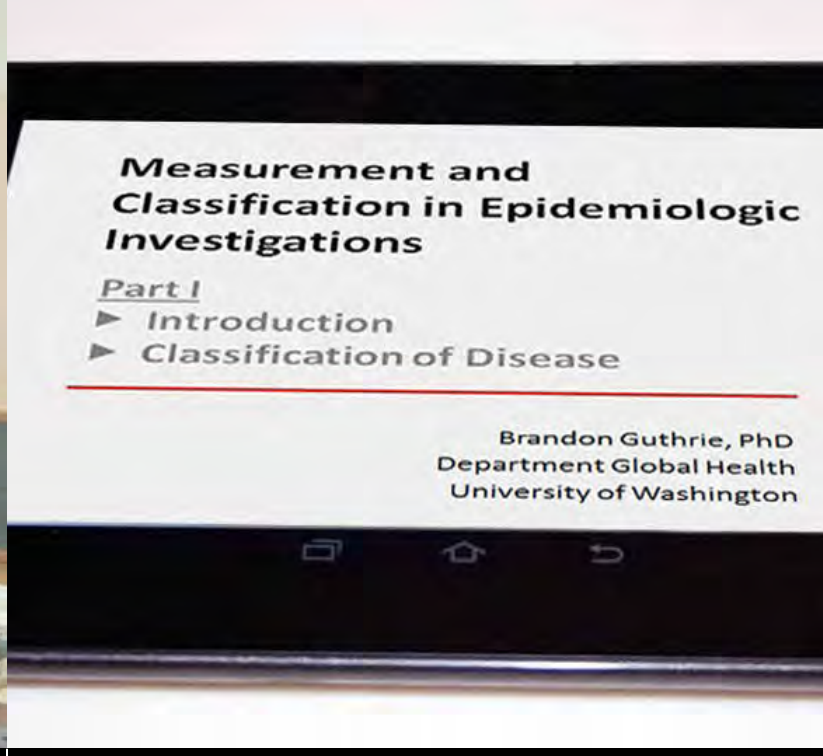
- Provide strategies for managing qualitative data.
- Define coding and differentiate between types of codes.
- Illustrate how qualitative data is presented in a paper.

* NOTE: course content is subject to change

Instructor

Brandon Guthrie, PhD
Acting Instructor, Dept. of Global Health
University of Washington





REQUIREMENTS

The course is offered exclusively online. All course participants must have access to a computer with internet connection in order to view recorded lectures, access course materials and activities, submit assignments, and participate in discussion forums. There will be multiple weekly opportunities for real-time tutoring with instructors and teaching assistants at the University of Washington using web-based conferencing tools that facilitate typed-chat and voice interaction. For a complete list of minimum technical specifications, please visit the website.

All course participants must be available to devote 6-9 hours to course work each week for 10 weeks for the duration of the course.

University of Washington (UW) academic credit is not available to students enrolled online, but a Certificate of Completion with be issued by UW to those participants who meet course expectations.

ELIGIBILITY

The course is appropriate for individuals with experience in a health-related field with interest in understanding epidemiologic principles and research methods.

Successful applicants will have achieved a Bachelor's level degree (or equivalent) and have experience in a health-related field.

The course is taught in English. Participants must be comfortable comprehending written and spoken English.

Proficiency in algebra is required.

For more information visit
http://edgh.washington.edu/course/introduction-epidemiology-global-health

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DEPARTMENT OF GLOBAL HEALTH