

Course Outline for MSc Field Epidemiology (2-years course):

Epidemiological Methods Module

- Epidemiological Study Designs
- Matching in Case-Control Study
- Measures of Association
- Measures of Impact
- Measures of Causation
- Sampling Techniques
- Questionnaire Design
- Bias and Confounding
- Lab and Biosafety
- Leadership and Management

Outbreak Investigation Module

- Operational steps of an outbreak investigation
- Given a cluster of cases of illness in a community:
 - Determine whether an epidemic exists
 - Verify the diagnosis
 - Count cases and determine attack rate
 - Develop biologically plausible hypotheses
- Describe the use of and present data in a line listing
- Construct and interpret an epidemic curve
- Types of evidence that need to be collected in the field
- Analysis in Outbreak Investigation
 - Descriptive analysis of time, place and person
 - Analytical analysis including association measures and tests of significance

Disease Surveillance Module

- Purpose and use of surveillance data
- Sources of surveillance data
- Surveillance strategies and systems

- Active and passive surveillance systems
- Surveillance system development
- Surveillance Data Analysis
 - Evaluate the reliability and validity of surveillance data
 - Types of bias that may occur in analyzing surveillance data
 - Create time series graphs using raw data
 - Describe limitations in surveillance data that impact interpretation
 - Describe possible changes in reporting of surveillance data that may impact interpretation
- Operation of a surveillance system
- Attributes of a surveillance system, including sensitivity and predictive value positive
- Surveillance System Evaluation

Biostatistics Module

- Measures of Central Location
- Measures of Dispersion
- Measures of Disease Frequency
- Rate Adjustment
- Probability
- Normal Distribution
- Confidence Interval
- Standard Error
- Parametric & Non-parametric Tests
- Statistical Inference
- Stratified Analysis
- Effect Modification
- Sample size calculations

Field Milestones (to be completed during 2-years in the field):

- Independent outbreak investigation
- Public Health Surveillance System Evaluation
- Data-set Analysis
- Teaching and Mentoring
- Protocol-based Research Study
- Developing an abstract
- Conference Presentation
- Manuscript