

Hack-a-thon: Developing an Intermediate/Advanced Epidemiology Syllabus

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Aims

- The epidemiology curriculum development hack-a-thon is a dynamic, hands-on session dedicated to creating a forward-thinking curriculum for teaching epidemiology in the modern era. Participants, including educators, epidemiologists, and curriculum developers, will work collaboratively to create core educational modules that address the complexities of advanced epidemiological methods and contemporary data analysis.
- The goal is to develop a curriculum-that enhances data literacy, critical thinking, and the application of sophisticated epidemiological tools, preparing epidemiologists and public health practitioners to navigate and address the intricate challenges of today's interconnected public health landscape.

Plan for the Session

- **Develop objectives for a syllabus for an Intermediate/Advanced Epidemiology course**
 - Brainstorm a list of topics in small groups
 - Breakout groups to think through objectives for each
 - Report back
- **After the session we will work to combine and flesh out, send around for discussion**
 - We will ask for feedback (is level correct, how can we improve)
- **Publish for use as a template?**
- **Get contact information for everyone**

Who is the audience for this class?

- **Students**
 - Doctoral/Postdoctoral
 - Could also be Instructors, Academics, Researchers
- **Have taken at least an introductory epidemiology class**
 - Preferably intermediate
- **Have familiarity with topics including**
 - Study design
 - Sources of bias
 - Simple and stratified analysis
 - Logistic, proportional hazards regression

Timeline

■ Proposed outline

- 13:30–13:40 Introductions and present goals of the hack-a-thon
- 13:40–14:00 Present a list of possible topics/Discuss topics addition and subtraction
- 14:00–14:45 Break into working groups to brainstorm and develop learning objectives
- 14:45–15:30 Report back and discuss future directions

Brainstorming Topics



We will present some ideas for topics for you to critique and add/subtract

But this will look generic, like any methods course, what will make this intermediate will be fleshing out what should be covered in the aims



Possible Topics

- **Asking good study questions**
- **Causal Models of Causation**
 - Counterfactual, causal pies
- **Causal inference**
 - Causal Diagrams (DAGs)
 - Causal Models
 - Target trial framework
- **Study Design**
 - Cohort, case control, crossover
 - Quasi experimental
 - Instrumental variables
 - Regression discontinuity
 - Diff in Diff
- **Source of Bias**
 - Selection, Confounding, Info Bias
 - Matching
- **Interaction/Mediation**
- **Random Error**
 - Precision, confidence intervals, pvalues, p-hacking
- **Data Analysis**
 - Stratified analysis, Standardization
 - Linear, logistic, log linear, PH reg
 - Propensity scores
 - Inverse probability weighting, MSM, G methods. Missing data

Break out groups

- **We want to cover each topic, so we will assign you to a group**
 - 40-45 minutes
 - Write a statement of 4-5 sentences giving an overview of the class
 - Come up with a list of 4-6 class objectives
 - If time, come up with 4-6 readings
 - Do this in the Google Sheet
 - Add your names and emails
- **Think about the level – this is an intermediate/advanced course**