Global Health Resesearch: Designs and Methods by Eric Green | Module 2 Learning Objectives			
Module	**Chapter**	**LO**	**Objective**
2	3	3.1	Describe the purpose of a meta-analysis.
2	3	3.2	Read, interpret, and synthesize results of meta-analyses and systematic reviews.
2	3	3.3	Interpret the results of a forest plot.
2	3	3.4	Define effect size.
2	3	3.5	Define confidence interval.
2	3	3.6	Define heterogeneity and be able to assess it using a forest plot.
2	3	3.7	Explain why to find the pooled result of a meta-analysis, the results of the studies included are not just averaged.
2	3	3.8	Explain the relationship between one study's sample size, and effect size and direction, on the results of a forest plot.
2	3	3.9	Compare and contrast a meta-analysis, systematic review, and literature review, and describe the appropriate scenarios in which to use each.
2	3	3.10	Identify the different sections of a systematic review and describe the primary purpose of each section.
2	3	3.11	List the major steps of conducting a systematic review.
2	3	3.12	List the 3-4 websites that you should go to first to find systematic reviews and meta-analyses.
2	3	3.13	Define the different levels of the GRADE criteria, and explain its significance in systematic reviews and meta-analyses.
2	3	3.14	Explain the importance of search strategies.
2	3	3.15	Interpret results of a summary table in a systematic review.
2	3	3.16	Conduct a reasonable search of the literature on a given research topic.
2	3	3.17	Describe MeSH terms and their use in research databases.
2	3	3.18	Utilize Boolean operators in order to build an effective search strategy.
2	3	3.19	Organize references in a chosen reference manager.
2	4	4.1	Define EBM
2	4	4.2	List the strengths and weaknesses of the peer review process
2	4	4.3	Provide an example of a time when the peer-review process was flawed.
2	4	4.4	List the major steps of the peer review process
2	4	4.5	List the four major parts of a scientific paper.
2	4	4.6	Identify an introduction in a journal article
2	4	4.7	Identify the key pieces of information in the introduction of a given journal article
2	4	4.8	Define the main purpose of the introduction section in a journal article
2	4	4.9	Utilizing the categories of filtered, experimental, and observational designs, explain why all researchs designs are not created equal
2	4	4.10	Distinguish random error and systematic error (bias), and be able to identify and provide examples of each.
2	4	4.11	Explain why the acceptance of some error is necessary for scientific research.
2	4	4.12	Define selection bias, and explain the susceptibility of non-randomized designs to it.
2	4	4.13	Be able to identify different types of bias present in a given study.
2	4	4.14	Define confounding
2	4	4.15	Determine whether or not a particular variable is a confounding variable
2	4	4.16	List the five known risks of bias for RCTs.
2	4	4.17	Identify the methods section in a journal article
2	4	4.18	Identify the key pieces of information in the methods section of a given journal article
2	4	4.19	Define the main purpose of the methods section in a journal article
2	4	4.20	Define internal validity and explain its relationship to bias
2	4	4.21	Describe the process of pre-registration and its purpose
2	4	4.22	Define outcome switching
2	4	4.23	Identify the results section in a journal article
2	4	4.24	Critically appraise the appropriateness of a results section based on the methods section
2	4	4.25	Explain the main questions that should be answered in a discussion section.
2	4	4.26	Define external validity
2	4	4.27	Determine whether a study has high or low external validity
2	5	5.1	Define causal impact
2	5	5.2	Define "counterfactual"
2	5	5.3	Give examples of counterfactuals to hypothetical situations
2	5	5.4	Explain the fundamental challenge of causal inference and its relationship to research design
2	5	5.6	Explain the need to run studies on groups of people instead of individuals
2	5	5.7	Explain the use of the principle of the average treatment effect in providing a counterfactual
2	5	5.8	Give a formal definition of "causes"
2	5	5.9	Define average treatment effect (ATE)
2	5	5.10	Explain how the average difference in potential outcomes is equal to a difference of averages
2	5	5.11	List the three required characteristics of causal relationships

2	5	5.12	Explain the different levels of difficulty in establishing the characteristics of causal relationships										
2	5	5.13	Evaluate a whether or not two variables are in a causal relationship										
2	5	5.14	Explain internal validity's relationship to causal relationships										
2	5	5.15	Be able to define, identify the following threats of internal validity in a given study, and give examples of: ambiguous temporal precedence, selection, history, maturation, regression, attrition, testing, instrumentation, additive and interactive effects										
2	5	5.16	Explain the two primary reasons why an experimental design is subject to fewer threats to internal validity compared to other designs										
2	5	5.17	Explain how the following disciplines differ in how they infer causal inference from non-experimental data: psychologists, economists, epidemiology										
2	5	5.18	Define identification strategies										
2	5	5.19	Explain the difference between experimental, quasi-experimental, and non-experimental designs for the disciplines of psychologists, economists, and epidemiology										
2	5	5.20	Define descriptive research and identify its major goals										
2	5	5.21	Summarize DHS' contribution to descriptive research and list 2-3 major uses by researchers										
2	5	5.22	Utilize DHS in order to find relevant demographics to various research projects										
2	5	5.23	Distinguish cross-sectional studies from panel/longitudidal studies and be able to give examples of each										
2	5	5.24	Define correlational research and give examples of three types of correlational study designs										
2	5	5.25	Define exposure, and be able to identify it in a given study.										
2	5	5.26	Define observational/non-experimental studies and give examples										
2	5	5.27	Describe the design of a prospective cohort study and list 2 limitations of this design										
2	5	5.28	Describe the design of a retrospective cohort study and list 2 limitations of this design										
2	5	5.29	Describe the design of a case-control study and list 2 limitations of this design										
2	5	5.30	Describe the key characteristics of an experimental design										
2	5	5.31	Define quasi-experimental research and be able to list four examples quasi-experimental designs										
2	5	5.32	Distinguish between randomized control trials and cluster randomized control trials										
2	5	5.33	Given a study, be able to identify what type of design it utilizes and the strenghts and weaknesses of that study based on its research design										