



COLUMBIA

VAGELOS COLLEGE OF
PHYSICIANS & SURGEONS

PROGRAM FOR EDUCATION IN
GLOBAL AND POPULATION HEALTH

GLHL M7207: Research Methods in Global and Population Health

Spring 2021 Syllabus

Course Director:	Kim Hekimian, PhD (kh2551@cumc.columbia.edu)
Course Lecturers:	Kim Hekimian, PhD Rachel Moresky, MD MPH Alexis Walker, PhD Michael Yin, MD
Office Hours:	Kim Hekimian, PhD: Wednesdays 2-5:00pm or by appointment (via zoom)
Location:	Online via zoom link:
Dates:	Tuesdays, March 30 – May 25 (no class April 20)
Time:	6:00pm – 7:30pm

Overview:

The spring semester introduces you to concepts in research design and planning as well as application of research methodology that will enhance your summer independent study project. Topics will be covered via course lectures, group discussions and required readings.

Goals & Objectives:

At the conclusion of the spring students will be able to:

- Develop research questions and study hypotheses
- Understand the differences and uses of qualitative versus quantitative research methods
- Develop a written research plan aimed to enhance activities for summer independent study
- Critically appraise journal articles with discussion of bias, reliability and validity

Textbooks:

- *Designing Clinical Research*, Hulley et.al. Fourth Edition.

Required and Recommended Readings:

- See required readings in Modules on Courseworks

Grade/Assessment:

The course will be graded Pass/Fail. Students must have an average final grade above 75 to pass the course. The course will be assessed via:

- Attendance (students are allowed 2 unexcused absences; excused absences need to be communicated to the course director prior to class)
- Submission of one (1) journal article reporting results from a quantitative survey using a questionnaire, in the field of your choice, with a short critical summary of the article (one page, single-spaced, due April 11).
- Submission of one (1) journal article on qualitative research in the field of your choice, with a short critical summary of the article (one page, single-spaced, due May 2).
- Submission of either A) a draft research study plan or B) a journal critique and presentation slides (Due May 24). Student presentations will take place on May 25.

Dates, Topics, Lectures, Readings and Exercises:

Date	Topic	Lecturer(s)	Readings	In-Class Exercise
Tuesday March 30	Intro the Course Intro to Research Design Developing the Research Question	Kim Hekimian, PhD	Hulley et.al. Chapters 1+ 2 Other readings, see Courseworks	Develop a Research Question (RQ) Hypothesis with Predictor and Outcome Variables
Tuesday April 6	Study Design and Selection of Subjects, Sampling Methods	Kim Hekimian, PhD	Hulley et.al. Chapters 3, 7 + 8	Describe the Study Design to Answer the RQ; Critique the Sampling Method
Tuesday April 13	Quantitative Research Methods: Surveys and Variable Measurements	Kim Hekimian, PhD	Hulley et.al. Chapters 15 + 3 Other readings, see Courseworks	What quantitative variables are measured and how?
Tuesday April 27	Reliability and Validity, Bias and Confounding	Kim Hekimian, PhD Michael Yin, MD	Hulley Chapter 4 Other readings, see Courseworks	What are the possible areas of error – how can they be addressed?
Tuesday May 4	Qualitative Research Methods and Data Collection	Kim Hekimian, PhD	See Courseworks	Conducting a Focus Group and Key Informant Interview
Tuesday May 11	Ethical Challenges in Global Health Research and Programs	Alexis Walker, PhD	CITI training, Human Subjects Protection See Courseworks	Break-out room discussion
Tuesday May 18	Ethics and Inequities: Global Vaccine Distribution	Rachel Moresky, MD MPH	See Courseworks	Creating a Rascal Protocol
Tuesday May 25	Student Presentations – Research Proposal or Journal Critique	Kim Hekimian, PhD	Submit Slides	Present

Research Plan Outline (adapted from <i>Designing Clinical Research</i> , Stephen Hulley et. al. 2013)	
<u>Sections of the Plan</u>	<u>Description</u>
Research Question(s)	What question(s) will the study address?
Background and significance	Why are these questions important?
Design <ul style="list-style-type: none"> • Time Frame • Epidemiologic design 	How is the study designed?
Subjects <ul style="list-style-type: none"> • Selection Criteria • Sampling Design 	Who are the subjects and how will they be selected? (or how were they selected?)
Variables <ul style="list-style-type: none"> • Predictor variables • Confounding variables • Outcome variables 	What measurements will be made? How will the measures be taken? Will variables be measured qualitatively or quantitatively?
Statistical Issues <ul style="list-style-type: none"> • Hypotheses • Sample Size • Analytic approach 	What are the anticipated relationships between variables? How will they be analyzed? What about issues of power/sample size? Will mixed-methods be used to triangulate results?
Issues of Reliability and Validity	What are the anticipated issues in error? How can you address these issues prior to the study?
Timeline of Activities for Research	Break down of activities by date – research plan approval, IRB, field work, data analysis, writing, etc.