CLINICAL RESEARCH METHODS * LEARNING OBJECTIVES

***By the conclusion of the Clinical Methods Research sessions, the learner should be able to accomplish the following:***

1. Outline the sequential process of initiating, developing, implementing, and analyzing a research project
2. List four different approaches for conducting a literature search
3. Formulate a research question that meets criteria for a "good" question
4. Formulate a testable hypothesis
5. Define predictor, outcome, and confounding variables
6. Define and differentiate among the levels of measurement
7. Distinguish between precision and accuracy in measurement
8. Discuss strengths and weaknesses of interviews and questionnaires
9. Design a questionnaire considering structure, format, wording, bias, and scaling
10. Distinguish between a population and a sample, a target population and an accessible population
11. Identify factors in determining subject selection criteria
12. List different sampling strategies, and strengths and limitations of each
13. Enumerate strategies for subject recruitment
14. List the four most common clinical research designs (cohort, cross-sectional, case-control, randomized clinical trial) and be able to distinguish the strengths and limitations of each
15. Describe reasons for deciding whether a descriptive, analytic, or experimental study would be most appropriate to answer a specific research question
16. Differentiate between internal and external validity
17. Discuss errors of research, such as random error and systematic error, that might limit the validity of a causal inference
18. Explain Type I and Type II errors with reference to the null hypothesis
19. Explain the importance of power calculations and effect size
20. Describe the role of an Institutional Review Board, or other oversight body
21. List the three ethical principles guiding clinical research and discuss the implications of each for design and implementation of research