Comparative Effectiveness Research Curriculum

Course Descriptions

**Meta Analyses and Systematic Review 3 Credits**

This course is designed to train students in the conduct of a systematic literature review, considered by many investigators to be the highest level of evidence for answering clinical questions and developing the skills to conduct a review built on the framework of evidence-based practice. This is a graduate-level course designed to highlight rigorous systematic review methods. The course comprises of didactics classroom sessions and lectures on the topic as well as hands on conduct of a systematic review on a topic. Students will be taught how to perform each step in a review and apply it to a topic of their choosing. The students, at the beginning of the class, will be asked to choose one topic of interest or will be provided a topic of interest and will be taken through the process of systematic review of the topic. Lab sessions will focus on practical aspects of meta analysis. Analyses will be performed using RevMan software, which is available as a free download. At the completion of this course students should be able to: formulate key questions for a systematic review, organize a literature search, identify which literature databases to search, abstract relevant information from studies in a systematic manner, rate the scientific quality of each study, create evidence tables and summary tables, summarize the studies’ findings and interpret findings. The final deliverable for the course will be a systematic literature review presentation.

**Decision Analysis and Comparative Effectiveness 3 Credits**

This course covers the basics of decision analytic modeling methods for clinical research. We will review the role of decision science in optimizing clinical outcomes. Students will learn to design and interpret decision trees to address clinical questions, and to quantify relevant clinical outcomes. Other topics include the interpretation and evaluation of diagnostic testing strategies in clinical research, Bayes theorem, TreeAge, multiple tests and ROC curves. Evaluation will be based on problem sets, class participation, and the submission of a proposal for an individual research project.

**Cost Effectiveness Research 3 Credits**

The purpose of this course is to provide an introduction to the concepts and techniques used in the economic evaluation of health care interventions. In the face of shrinking health care resources, providers, payers, and purchasers of health care must become more efficient, and therefore we must understand the optimal basis and methods for estimating the value of any health care intervention or program. This course will provide an understanding of the foundations of cost effectiveness analysis, with sufficient detail regarding the mechanics and methodologies to prepare students to both interpret and critique the literature of cost effectiveness analysis and construct these analyses themselves.
**Advanced Methods in Observational Data Analysis 4 Credits**

This is the third and most advanced installment of the biostatistics courses. The goal of this course is to provide students with knowledge and skills necessary for understanding indications and interpretation of statistical approaches used in comparative effectiveness research. A broad range of topics, more typically taught over several semesters, will be covered in a condensed format focusing on aspects of greatest relevance to clinician-researchers. In addition, students will have opportunities to apply statistical techniques using common software packages including SPSS and STATA.

**Decision Aids and Clinical Decision Supports 3 Credits**

This course’s objectives are for students to learn about models of patient-physician communication and methods to improve patient involvement in the decision making. Topics include the foundations of developing decision aids, particularly issues revolved around literacy, numeracy, preference elicitation, and tailoring of information. Finally, issues regarding development of web-based tools, evaluation and implementation of decision aids are discussed. Accompanying the lectures are labs that involve students developing a decision aid. Evaluation will be based on class participation, problem sets, and class project/presentation.

*Additional Elective courses are offered in the Fall and Spring semester.*

*Elective courses above and beyond the five core CER classes have additional elective fees of $1,700 per course.*