McGill | Department of Epidemiology, Biostatistics and Occupational Health

Biostatistics Seminars

Fall 2017

John R. Lockwood, PhD

Principal Research Scientist,
Educational Testing Service

Practical Solutions to the Problem of Causal Inference with Error-Prone Covariates

Tuesday, 17 October 2017
3:30 pm – 4:30 pm - Purvis Hall, 1020 Pine Ave. West, Room 24

ALL ARE WELCOME

Abstract:
Background variables (covariates) are commonly used to adjust for pre-treatment differences between treatment and control groups in observational evaluations. However, it is common in settings such as educational and health-related evaluation studies for key covariates to be measured with error. For example, standardized test scores, often used to adjust nonequivalent groups in educational evaluations, measure latent achievement constructs with error. Such error can lead to bias in treatment effect estimates if unaddressed. This presentation will discuss recent research on methods that can be used to mitigate the bias due to covariate measurement error in a variety of statistical models commonly used for causal inference. It will demonstrate the practical value of Simulation-Extrapolation (SIMEX), a simple and intuitive method, for mitigating bias even with complicated causal effect estimators.

Bio:
J.R. Lockwood is a Principal Research Scientist at Educational Testing Service. He specializes in longitudinal modeling of student achievement, the measurement of teaching quality, and experimental and quasi-experimental methods in educational evaluation. His recent methodological research interests include measurement error modeling and causal inference with observational data. Prior to joining ETS, he was a Senior Statistician at the RAND Corporation. He received his Ph.D. in Statistics from Carnegie Mellon University in 2001. He was the winner of the 2016 Causal Effects Data Analysis Challenge sponsored by the Atlantic Causal Inference Conference.

www.mcgill.ca/epi-biostat-occh/news-events/seminars/biostatistics