NYU Stern School of Business
Department of Information, Operations & Management Sciences
IOMS Colloquium Series

TOPIC: Targeted Learning
SPEAKER: Mark van der Laan (UC Berkeley)
DATE: Friday, April 15, 2016
TIME: 12:30 PM – 1:45PM (Lunch served at 12:15 pm)
PLACE: KMC 4-60

ABSTRACT

In this talk I discuss some serious problems with the current practice of statistical data analysis relying on non realistic model assumptions. In response to this, we proposed a field targeted learning that integrates the state of the art in machine learning to develop highly data adaptive targeted estimators of specific target parameters of interest, while obtaining statistical inference in terms of confidence intervals and testing. Such target parameters could represent answers to causal questions of interest based on complex observational studies or randomized trials, such as what is the causal effect of a particular treatment on a survival time, what is the mean counterfactual outcome under an optimal individualized treatment rule, and so on. The generic approach for construction of such estimators relies on super-learning and targeted maximum likelihood (or more generally, minimum loss) estimation. We discuss the foundations and philosophy of targeted learning, review its general methodology and advances, and show some applications in precision medicine.

BIO:

Mark van der Laan is Jiann-Ping Hsu/Karl E. Peace Professor of Biostatistics and Statistics at UC Berkeley. His research interests include statistical methods in genomics (i.e., computational biology), survival analysis, censored data, targeted learning, semiparametric models and causal inference, data adaptive loss based estimation, and multiple testing. He is one of the founding editors of the International Journal in Biostatistics and the Journal of Causal Inference. He has advised over 40 Ph.D students and many post-doctoral researchers. Mark's research has been funded mainly by NIH grants involving collaborations in HIV-research. He has published various books and authored over 250 publications. He has received various awards, most notably the 2004 Mortimer Spiegelman Award, the 2005 Van Dantzig Award, the 2005 COPPS Snedecor Award and the 2005 (COPSS) Presidential Award.