



The University of Chicago
Department of Statistics
SUMMER Seminar Series

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Recent Developments in Quasi-Monte Carlo Methods

TUESDAY, September 6, 2011, at 4:00 PM
133 Eckhart Hall, 5734 S. University Avenue

ABSTRACT

Quasi-Monte Carlo methods are highly stratified sampling schemes that can achieve convergence rates of $O(n^{-1+\epsilon})$ or better, in comparison to the $O(n^{-1/2})$ convergence rate one normally expects. Although the initially derived quasi-Monte Carlo methods convergence rates exhibited a dimension dependence that could be serious for large dimensions, recent research has identified settings where this dimension-dependence disappears. Moreover, a multi-level approach allows quasi-Monte Carlo methods to be used efficiently even for infinite dimensional problems. Statisticians, applied mathematicians, and computer scientists have all contributed to these developments. This talk describes the essential idea behind quasi-Monte Carlo methods and what is required for them to reach their potential. Some open problems are also discussed.

For further information and about building access for persons with disabilities, please contact Laura Rigazzi at 773.702.8333 or send email (lrigazzi@galton.uchicago.edu). If you wish to subscribe to our email list, please visit the following website: <https://lists.uchicago.edu/web/arc/statseminars>.