Stat 362 Topics

We will have time for most of the following:

Pseudo Random numbers generators, tests, Mersenne Twister

Non-uniform sampling inversion, accept-reject, mixtures, tricks

Vectors Gaussian, multinomial, t, Dirichlet, conditional & copula sampling

Objects permutations, rotations, sub-samples, order statistics, matrices

Processes Markov chains, Brownian motions, random walks, Chinese restaurant

Correlation induction antithetics, common variates/coupling, stratification

Improved analysis control variates, Rao-Blackwellization

Improved generation importance sampling, splitting, Russian roulette, SAWs

Markov chain MC I Markov chains, detailed balance, Ising, Metropolis-Hastings,

Markov chain MC II Gibbs sampler, slice sampler, hit and run

Markov chain MC III adaptive Metropolis, tempering, perfect sampling

Sequential MC Russian roulette, splitting, sequential importance sampling

Multiple stratification Latin hypercubes, function anova, orthogonal arrays

Quasi-Monte Carlo I discrepancy, Koksma-Hlawka, Halton

Quasi-Monte Carlo II Sobol', Faure, Niederreiter-Xing, lattices

Randomized QMC Cranley-Patterson, scrambled nets, padding, Latin supercubes

MC optimization Annealing, genetic algorithms, stochastic programming