Two one-semester courses taught at the Johns Hopkins University using material from *Introduction to Stochastic Search and Optimization*. Table shows approximate order of presentation of subjects.

Stochastic Optimization	Simulation and Monte Carlo Methods*
Appendix A—Multivariate analysis Chapter 1—Issues in stochastic optimization	Handout—General issues in simulation Appendix A—Multivariate analysis Appendix B—Statistics
Appendix B—Statistics Appendix C—Probability theory Chapter 2—Direct search	Appendix C—Probability theory Chapter 13 (Sect. 13.1)—Modeling and bias–variance tradeoff
Chapter 3—Recursive linear estimation	Chapter 13 (Sects. 13.2 & 13.3)—Model selection and Fisher information matrix
Chapter 4—Stochastic approximation for root-finding	Appendix D and supplementary handout—Pseudorandom number generation
Chapter 5—Stochastic gradient methods	Chapter 7 (Sects. 7.1, 7.2, & 7.5) and Chapter 14 (Sects. 14.1 & 14.2)—SPSA and regenerative simulation systems
Chapter 6—Nongradient stochastic approximation (finite differences)	Chapter 14 (Sects. 14.3 & 14.4)—Common random numbers in simulation-based optimization
Chapter 7—Simultaneous perturbation stochastic approximation (SPSA)	Chapter 15—Gradient-based methods for simulation-based optimization
Appendix E—Markov processes Chapter 8—Annealing-type algorithms	Appendix E—Markov processes Chapter 16—Markov chain Monte Carlo
Chapter 9—Evolutionary computation I	Chapter 17 (Sects. 17.1 & 17.2)—Optimal experimental design for linear models
Chapter 10—Evolutionary computation II	Chapter 17 (Sects. 17.3–17.6)—Response surfaces and optimal design for nonlinear and dynamic models
Chapter 11—Reinforcement learning by temporal differences	Chapter 12 (Sects. 12.1, 12.2, & 12.5) and Chapter 14 (Sect. 14.5)—Statistical methods for selection using simulations
Chapter 12—Statistical methods for selection	

*In addition to the indicated material, several sessions are included in the simulation and Monte Carlo class on subjects such as variance reduction (importance sampling, common random numbers, etc.), model validation, discrete-event systems, and sensitivity analysis. Material for these subjects is drawn from sources such as the tutorial articles in recent volumes of the *Proceedings of the Winter Simulation Conference*, or the texts *Modern Simulation and Modeling* (1998) by R. Y. Rubinstein and B. Melamed (Wiley, New York) and *Simulation Modeling and Analysis* (2000) by A. M. Law and W. D. Kelton (McGraw-Hill, New York).