

Statistics 600: Statistical Computing Tentative Outline

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I. Class Description, Logistics, Computing Resources

II. Optimization

- A. Univariate Case: Bracketing, Fixed Point, Newton-Raphson, Fisher Scoring, Secant Methods
- B. Multivariate Case
- C. EM Algorithm

III. Numerical Integration (Chapter 5)

IV. Simulation

- A. Inverse CDF Method
- B. Rejection Sampling
- C. Importance Sampling

V. Markov Chain Monte Carlo (Chapter 7)

V. Bootstrapping (Chapter 9)

VI. Bivariate Smoothing (Chapter 11)

VII. Other Topics

- A. Topic(s) chosen collaboratively as time permits. Some possibilities: combinatorial optimization, multivariate smoothing, advanced MCMC methods.
- B. Student talks.