

Bayesian Data Analysis - Computation

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The course introduces the basic methods for computations based on a posterior distribution. In particular the following topics will be covered:

- Introduction to Bayesian computation,
- Basics of Markov chain simulation,
- Computationally efficient Markov chain simulation,

References

Gelman, J.B. Carlin, H.S. Stern and D.B. Rubin (2014). Bayesian Data Analysis, Third Edition. Chapman & Hall.

Topics

Numerical integration

Distributional approximations

Direct simulation and rejection sampling

Importance sampling

How many simulation draws are needed?

Gibbs sampler

Metropolis and Metropolis-Hastings algorithms

Using Gibbs and Metropolis as building blocks

Inference and assessing convergence

Effective number of simulation draws

Efficient Gibbs samplers

Efficient Metropolis jumping rules

Further extensions to Gibbs and Metropolis
