STK4021 Applied Bayesian Analysis compendium

September 29, 2020

Contents

1 Markov chain Monte Carlo

1.1 Gibbs sampler

With two parameters

Gibbs sampling is practical when you wish to sample $\theta_1, \theta_2 \sim p(\theta_1, \theta_2)$, but cannot use:

- direct simulation
- accept-reject method
- Metropolis-Hasting

But you can sample from:

- $p(\theta_1|\theta_2)$ and
- $p(\theta_2|\theta_1)$

Algorithm

1. Select intial values for the parameters $\theta^{(0)}$
2. Repeat for a given number of iterations, or untill some end condition is met:
   (a) for each subset θ_j of θ:
      i. sample from $p\left(\theta_j^{(t)}|\theta_{-j}^{(t-1)}, y\right)$