MSc in Biostatistics
Bayesian Inference: Project 2

Consider the third data set of the file dataproject1.R. Assume a suitable changepoint model to represent this data and appropriate prior distributions for the model parameters. Construct an MCMC algorithm to sample from the joint posterior distribution of the parameters.

Approach

1. Choose a changepoint model assuming that the CG proportion data come from two different isochores. Choose and justify your choice of prior distributions for the model parameters.
2. Derive the joint posterior distribution of the model parameters and compute (and recognise) the conditional posterior distributions of the parameters.
3. Construct a Gibbs sampler to sample draws from the posterior distribution of interest.
4. Write-up R code to implement your algorithm and present suitable quantitative results, icluding plots of the MCMC output, and a discussion of your results.

Write a report presenting your solutions. Submit your report together with a printout of the R code you used to obtain the numerical results. The deadline for this project is the day of the final exam.