Introduction

We start by discussing the choice of distribution might affect convergence, signals that show convergence, and when to expect convergence as even in the perfect case the sample will still need some time to converge. This is a discussion of what the theory says what we will converge and how in practical will experience cases that it does not converge as we expected. Some possible reason being bed proposal distribution that its support does not match the intended distribution, which means we rarely obtain a useful sample making the convergence impossible in the short term.

Activity 1

We compared the two distribution in the pre-class work, it is suggested the second distribution is better, but it seems the convergence of the second distribution is worth than the first one. Rojia points out that if we look at the time axis, the second distribution start to converge much faster and when we start to see y-value in a small range, we can consider the distribution is converged, as it is a random sampling so some variance is expected. The main benefit of the second distribution being it is less biased, so it converges to the correct value compare to the first distribution converging to a wrong distribution as there is a missing support in the proposed distribution. However, the second distribution is relatively broad, which could make the conference slower. When we see a large wright of the targeted density is large, which indicate the proposal distribution is inappropriate, and make the converging much slower.

Activity 2

In this model, we use 95% of the sample from the inappropriate bimodal distribution from the pre-class, and 5% from a relevant sample distribution. Comparing the model with 5% prior and 95% sample from the proposal distribution and using only prior, the benefit includes faster conversion and less bias from the prior. If we use only the prior and the prior is a miss-alignment of the distribution, we will observe a posterior far away from the prior. In such cases, we will experience a very slow convergence and a bias in the sample. In the case, we will be sampling from the tiny variance of the posterior distribution where there is hardly any distribution that is close to a uniform distribution and misses the actual characteristic of the posterior distribution.

Reflection Poll

We are not using only the prior as it introduces the risk of missing the posterior and converge into a close to a uniform distribution that misses the posterior entirely. By adding a small percentage of a broad prior, we can observe a more general support, which allows gives the data for the model to sample and converge. However, it is still

important that the additional prior does capture some of the posterior, as in the case that the posterior is far away from any proposal distribution we have, as there is no way to get a meaningful sample, we will still get a poor result.