Gibbs Sampling

To simulate from joint distribution of $(\mu, \theta) \sim \pi(\mu, \theta | \underset{\sim}{x})$

Ideally : $\pi(\mu, \theta | x) \equiv \pi(\mu | \underset{\sim}{x}, \theta)\, \pi(\theta | \underset{\sim}{x})$

So we should simulate θ from $\theta | x$

and then simulate $\mu | x, \theta$ to get one simulation of $(\mu, \theta) | x$

↑ This would have been 'Exact' Method of Simulation

Gibbs sampling is an 'approximate' method of simulation

- Simulate θ from $\theta | x, \mu$
- Simulate μ from $(\mu | x, \theta)$ to get $(\mu, \theta) | x$

Gibbs Sampling is one particular technique under "Markov Chain Monte Carlo' MCMC techniques