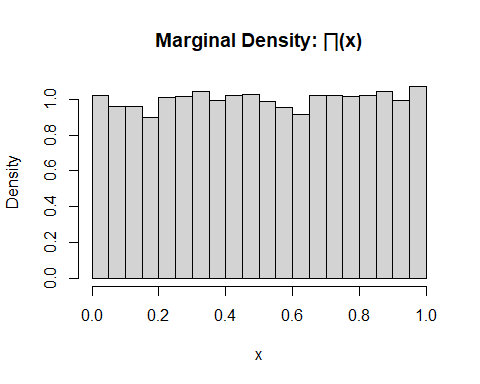
Bayesian Inference II

Erick Bala

2023-07-10

draw\_y\_given\_x<-function(x){  
 y<-runif(1,min = x,max = 2 - x)  
 return(y)  
}  
draw\_x\_given\_y<-function(y){  
 x<-runif(1,min = 0,max = 1)  
}  
gibbs\_sampler<-function(num\_iterations) {  
 x<-0.5  
 y<-1.5  
 samples<-matrix(NA, nrow = num\_iterations, ncol = 2)  
 for (i in 1:num\_iterations){  
 y<-draw\_y\_given\_x(x)  
 x<-draw\_x\_given\_y(x)  
 samples[i, ]<-c(x,y)  
 }  
 return(samples)  
}  
num\_iterations<-10000  
samples <-gibbs\_sampler(num\_iterations)  
hist(samples[, 1], breaks = 30, freq = FALSE,main = "Marginal Density: ∏(x)",xlab = "x")



hist(samples[, 2], breaks = 30, freq = FALSE,main = "Marginal Density: ∏(y)",xlab = "y")

