IE 531
PROGRAMMING ASSIGNMENT 4

The command line output is as follows for both MCMCMH and Gibbs sampling cases are as follows-

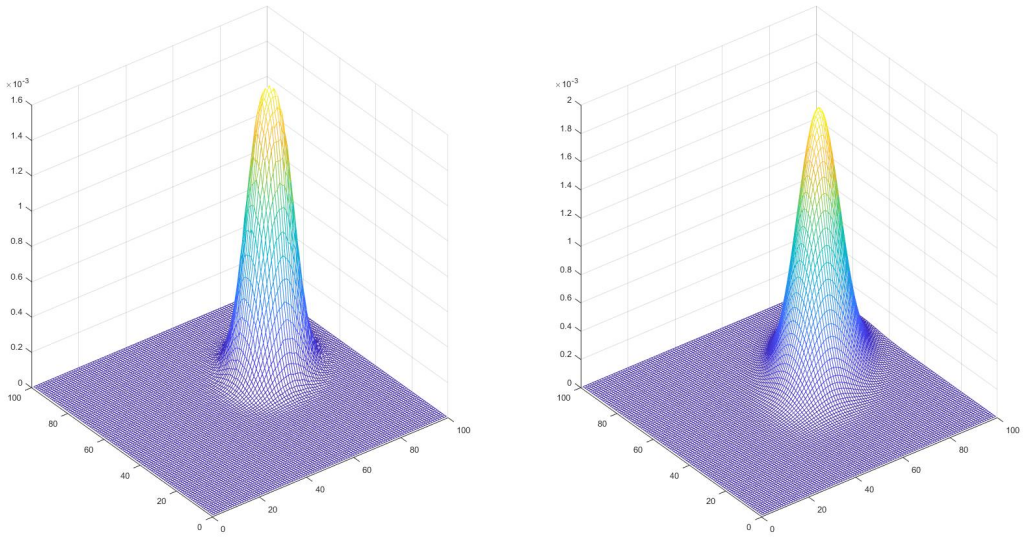
```
0.500000 1.000000
Karthiks-MacBook-Pro:Debug karthikjvn$ ./test 10000000 data1.txt theory1.txt
Multivariate Gaussian Generator using MCMC-MH
Dimension = 2

Mean Vector =
1.000000
2.000000

Covariance Matrix =
1.000000 0.500000
0.500000 1.000000
Karthiks-MacBook-Pro:Debug karthikjvn$ ./test 10000000 data2.txt theory2.txt
Karthiks-MacBook-Pro:Debug karthikjvn$
```

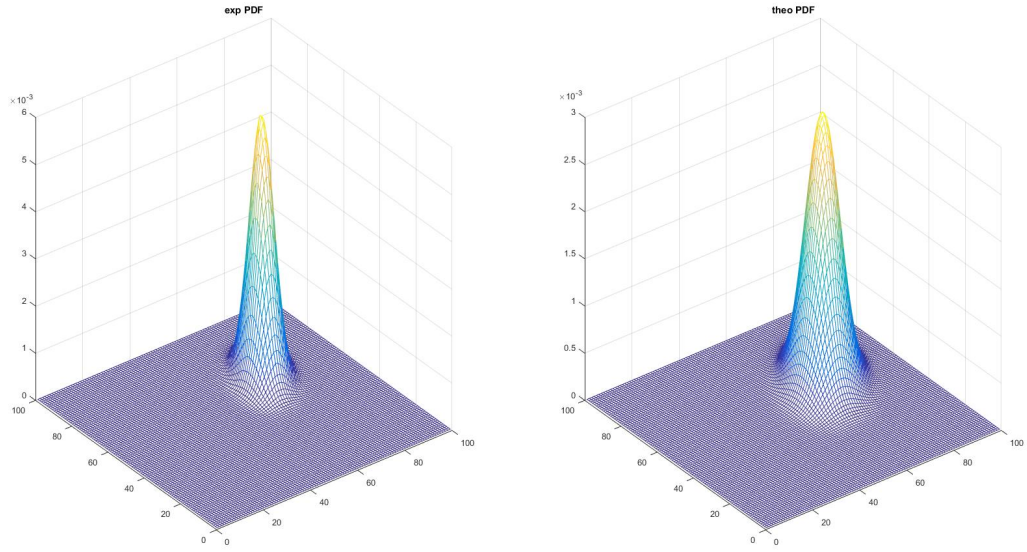
Sample run of the MCMC-MH and the Gibbs Sampling based Multivariate Gaussian RV Generator; d = 2 for this illustration; no of trials = 10,000,000.

The MATLAB plot for the MCMC-MH case is as follows-



A comparison of the experimentally observed PDF/histogram plot (on the left) vs. the theoretical PDF (on the right) for the trial shown in figure 1 (no of trials = 10,000,000).

The MATLAB plot for the Gibbs sampling case is as follows-



A comparison of the experimentally observed PDF/histogram plot (on the left) vs. the theoretical PDF (on the right) for the trial shown in figure 1 (no of trials = 10,000,000).