CHEM/PHY 598

Info: You can work in groups, but all solutions must be written up independently. Many of the written problems –which are not assigned directly from the class textbook– are taken from a variety of other textbooks/papers. If any question requires a computational component, provide your written answer on one sheet, then the printout of your Mathematica notebook only for that problem on separate sheets following your write-up for that problem. Then repeat for each problem. i.e. do **not** staple a Mathematica notebook printout for all problems at the end of your problem set. **Only codes that are commented *at every step* and *whose logic can be easily followed* will be graded**.

DUE: Thursday March 26th, 3PM. To be handed in within the first five minutes of class.

Problem 1: Develop a Metropolis sampler to generate random variable samples from a Cauchy distribution. Use normal and Student-t proposals.

Problem 2: Develop a Metropolis-Hastings sampler to generate random variable samples from a normal distribution that is truncated on both positive and negative ends such that it have density between x_{min} and x_{max}. Use normal and beta proposals.