

Problem Set 3

Due: September 25, 11:59 PM.

Assignment

Answer **all** of the following questions related to performing the requested tasks and then include your answers in an electronic file, save as a PDF, and merge together as a single PDF with bookmarks added to identify different sections. Upload your PDF file to the Blackboard Assignment page for Problem Set 3 by 11:59 on the due date.

1. Download the software MEGA on your local computer for a variety of homework assignments in this class. You can find MEGA here: <https://www.megasoftware.net/>
2. Download primatesAA.fasta and primatesNuc.fasta from Blackboard. Estimate the substitution matrix for each data set (note, you will have to do some data conversion and then an alignment to get this done). Show each substitution matrix. What parameter values did you use to get these matrices? What does this tell you about your data?
3. Determine the Best Fit model of molecular evolution for each data set. What is your model? Why did you select this model? What are your parameters in this model? What are the estimated parameter values?
4. Use the best-fit model to estimate a distance matrix for each data set. Show your distance matrix. What does this tell you about the sequences?