

## **BNFO 236 second exam review sheet (Spring 2017)**

1. Newick representation of trees
2. Tree data structure used in the UPGMA Python program
3. UPGMA algorithm: running it through an input by hand
4. UPGMA variants:
  - a. Update distance matrix to be the shortest distance between two clusters
  - b. Update distance matrix to be the largest distance between two clusters
  - c. Update distance matrix to be the median distance between two clusters
5. Comparison of phylogenies with bipartitions
6. Calculation of Jukes-Cantor distances
7. Calculation of evolutionary distances for whole genome sequences
8. Neighbor joining (NJ) algorithm
  - a. Running it by hand
  - b. Difference between NJ and UPGMA