

# BCB 5300

## Homework 5: Clustering

1.  $k$ -Means:
  - (a) Construct an instance of the  $k$ -Means Clustering problem for which the Lloyd algorithm produces a particularly bad solution.
  - (b) Find an optimal algorithm for solving the  $k$ -Means clustering problem when  $k = 1$ . What is the running time?
  
2. Construct an example for which the CAST algorithm does not converge.
  
3. Review section 10.7. How do you calculate the trimming parameter  $\delta$  in the Additive Phylogeny pseudocode?