

## **Final Project Report Guidelines**

You are given a genome assembly file, a SNP file, and a meta data file. Using this information you will write a 1-2 page report. The report must be at least one full page, not exceeding 2 full pages, with single spacing and 1 inch margins.

1. Provide background information on your outbreak **10 pts**
  - a. Where is the hospital? What type of hospital? How many patients were involved in the outbreak? What samples were analyzed and where were they from (i.e. healthcare worker, somewhere in the environment)?
2. Determine the bacterial species that is causing the outbreak among patients **5 pts**
3. What antimicrobial resistance gene/genes are present? **15 pts**
  - a. What resistance mechanism (porin, pump, etc.) is used?
  - b. Which antibiotics are likely to not be able to clear the infection?
4. Build a phylogenetic tree and describe the outbreak based on your tree **25 pts total**
  - a. Color the branches based on the type of sample (example- make patients green, make healthcare workers blue, etc). *10 pts*
  - b. Identify possible transmission events among patients and/or patients and environmental sources. Highlight these events on the tree *5 pts*
  - c. Include an image of your tree in your report!!!
  - d. Provide a description explaining your tree: identify the source and describe how the resistant bacteria spread. *10 pts*
5. Do you think that adding more sequenced patient and/ or environmental isolates to your dataset can change your results and conclusions? Why? **5 pts**
6. Provide recommendations to stop the outbreak based on your investigation. Can you think of measures to prevent or limit future hospital outbreaks from occurring? **5 pts**
7. Proper report format and length **5 pts**

In total, this report should provide background information on the outbreak, explain what kind of bacteria and antibiotic resistance is found in the outbreak, detail how the outbreak occurred (source and transmission events), and finally provide recommendations to the hospital.