1. **Summary of the feedback received**

* The first reviewer
  + Overall very positive feedback: found the abstract clear and representative, introduction encompassing of all the necessary information, the methods detailed and complete, results accurate, discussion and conclusion clear
  + Only change they mentioned implementing was describing the classifier with more details
* Second reviewer
  + Overall: genera is inconsistent throughout the document (some in italics while others are not), supplemental figure referencing should be in order
  + Abstract: clear but could be more concise
  + Introduction: effectively presents necessary information
  + Methods: sufficient but could have more details about dataset, methodology and rationale for splitting data into low and high could be clearer, DESeq2 should include number of samples in each comparison group
  + Results: P-values should be included in Figure 1, Subfigures of each figure should be mentioned, Figure 4A and 4C should be cited in the text
  + Discussion: well written, could have an introductory sentence, DESeq paragraph needs figure references
  + Conclusion and References: good
  + Figures: Figures need more labels & annotations, supplemental figures should be reordered to the order they appear in the manuscript

1. **How we approached the feedback and implemented it into the revisions**

* Aimed to include all feasible feedback, while keeping in mind the perspectives of both the first and second reviewer
* Added an introductory sentence to the discussion to reiterate motivation for study
* Made all genera italicized to keep formatting consistent
* Removed an unnecessary statement in results section for alpha diversity analyses
* Added statistical evaluation and relevant p-values to figure caption for alpha diversity analyses (Figure 1)
* Clarified the interpretation/trend detected in *Actinobacteriota* and *Firmicutes* taxabar plots.

1. **If there was any feedback that was not implemented, why**

* Since the determination of “low” vs “high” was arbitrary, there was no way to explain how we determined these metrics and so we did not implement that suggestion
* We chose not to render the abstract more concise. This is because the first reviewer found the abstract very clear and the second reviewer agreed but suggested it could be more concise; however, did not comment on any specific information that was not required and we were concerned we would cut out important information.
* In results discussion of beta diversity findings, the reviewer suggested that “significant” should only be used when referring to findings that have been proven to be statistically significant and a p-value should have been included. In this case, 8 p-values were used from different beta diversity metrics to come to this conclusion and were explained and cited in the preceding sentences to that statement. Therefore, we did not implement this feedback as we felt including 8 p-values would cause confusion and the preceding explanation was clear enough to understand that final summary sentence. The first reviewer also found the results clear so we kept this in mind when deciding not to implement this feedback.
* In Figure 1, reviewer two mentioned that it should be clarified which plot is for alpha or beta diversity; however, the figure is only alpha diversity
* In Figure 2, the order of figures was not changed because the interpretation is mostly focused on the data presented by Figures 2B/2C which is why the order does not follow Figure 2A legend and instead is ordered by most mentioned/interpreted in the manuscript.
* In Figures 2A-F, abundance values were not added because the 1st reviewer did not see an issue and it is outside the scope of what was learned.