Paper 1: NGS2 Part B Results Paragraph

The objective of the first paper write-up is to begin developing expertise in communicating scientific findings in written form. All written text should be in Times New Roman, 12 pt font, and 1-inch margins. Put page numbers at the bottom right. Bold section titles (you will have three: 'Results', 'Figures and Tables', and 'References'). Tables may be in a smaller font if preferred, no smaller than 9 pt font. The Results section should be double-spaced, but it is preferred if the figure and table legends are single-spaced. Make sure terms are italicized or capitalized appropriately if needed (e.g. species names have a format like this: *Homo sapiens*). There is not a page limit, but I anticipate ~2 paragraphs in the Results section, and ~2-3 pages total with figures and tables.

To submit, put your name in the header, along with the words "Paper 1". This must be turned in as a hard copy at the start of lab by Wednesday Sept 21 (Week 5W).

Results (should be double-spaced, but not shown here)

Because you are not writing an Introduction and Methods section, you will use a Results format where you *briefly* summarize the purpose/question and general methodology. The general flow should be to introduce the question you asked assessing sequencing quality in Week 3 Lab, Part B, making sure to also specify what were the biological data analyzed and from where these data came (see Week 2 Lab). Then, briefly describe the major steps you carried out to address your question, making sure to touch upon the role of *fastp*, random sampling, and the statistical test performed.

An important way to enhance clarity in writing a Results section is to organize your results so that you first emphasize a KEY result, followed by supporting evidence, and lastly any discrepancies (may not have any for this lab). This requires thinking about what is *most important* to relay to the reader – what will best help them understand the main finding you have? Avoid overly long descriptions of your observations or lists of information – the lack of purpose in these types of statements make it difficult for the reader to understand the story you are constructing. Make sure if you do have a long description or list, that it really is the best way of supporting your key result. Make sure you address both quantitative and qualitative support for your KEY result.

Cite figures and tables where appropriate – use your written text to highlight the important feature you want the reader to focus on in the figure or table. Use the figure or table legends to add the technical details a reader needs to understand how to read the figure or table, or understand how it was constructed. Make sure to cite your figure or table as shown at the end of this sentence so the reader knows to connect the information in that sentence to the figure or table (Figure 1, Table 1). If you find yourself listing large sets of numbers or other descriptors, consider whether you can write more concisely and leave the details to the figure/table. Choice of what to include in the text is dependent on a mix of what you most want to emphasize to the reader and maintaining readability of the text.

Figures, tables and their legends have a specific format (see the figure and table legends included on the next page for clarity), and are included at the end of the written text. If more than one

figure, make sure they are ordered based on first appearance in the text. Keep tables and figures separate, and start each from the number 1.

Use the guidelines from Pechenik Chapters 1, 4, and 9 – above all else, we are looking for enough information conveyed for the reader to understand what you did and what your major findings were, with enough convincing support that they have confidence in the results to the same level that you have confidence. Ideally, the paper is also concise, so the reader can quickly arrive at the information and findings with as little work as possible.

Figures and Tables (legends should be single-spaced)

> Make sure figures are above their corresponding legends. If using more than one panel, put A, B, C…next to each panel on top left side and note how each panel differs in the legend. Center the figure(s) and remove unnecessary white space. Make sure the quality of the image is high enough that the figure contents are legible. If a graph, make sure all axes are labeled and any key that is needed is shown.

Figure 1. Title of figure must be bolded and give general summary of what is included in one sentence/phrase. Figure titles/legends occur UNDER the figure. For the legend, a brief overview of the methods used to generate the figure should be shared, no more than 1-2 sentences. Be specific about what the data are – a reader should not need to dig further than the legend to interpret the figure. If there are subfigures, label them and provide an overview of each. Provide details after brief explanation of figure and methods that assist reader in interpreting figure (explaining color coding, important symbols, etc). Figures should be in numerical order, between the writing component and the References section. You must include an image of the before and after filtering figures from the *fastp* HTML from Week 2 Part B lab.

Table 1. Title of table must be bolded and give general summary of what is included. Table titles/legends occur ABOVE the table. Methods are not always included, but any symbols the reader needs to understand should be included after the title or as a subscript under the table. Tables should be in numerical order, after the figures but before the References section. Make sure the table is nicely formatted in what you would deem presentable for publication. For the NGS2 write-up, a table containing the data you included in worksheet B2 should be included.

Note how the table is below the table title and legend.	Adjust formatting (bolding, borders, shading) in such a way to make everything look nicely formatted	Insert → Table will allow you to make a table of preferred rows and columns	Table Design/Layout allows you to adjust parts of the table. This is best done in Microsoft Word, instead of Google Docs, for easier formatting

References

Citations will follow Pechenik format. You should cite the *fastp* software, using the primary reserch article described at this link: https://github.com/OpenGene/fastp. You do not need to cite the origin of your sequencing data for Paper1, though typically if not generated by you, you would want to do so.