Pollution and Abatement Technologies: ESST 2005
Lab # 3 lab write up guidelines

Before we start writing, we need to critically review the learning objectives from the lab. Can you recall what they were?

Learning Objectives of lab 3:

- To observe the operation of Oropune Wastewater Treatment Plant
- To understand key features in the wastewater design
- To observe and understand factors influencing water quality parameters
- To design experiments that will improve removal efficiencies of fecal coliform and TSS
- To conduct experiments that will improve removal efficiencies of fecal coliform and TSS

Considering these key learning objectives, we need to objectively examine the factors that influenced the fecal coliform and TSS problems at Oropune Gardens. If you have a problem recalling the specific problems, please review the data from the YouTube Resources below:

TSS: https://youtu.be/mj2lMJu-7VI

Chlorination: https://www.youtube.com/watch?v=m96GqlbY9R8&feature=youtu.be

When writing up your lab you need to consider the following sections:

1. **Title**: A lab title that is reflective of the scope of the study and not a generic title like " ESST 2005: lab 3 (2.5 marks)
2. **Abstract:** Write this section last. The word limit is 250 words. It should be a summary of all sections. (2.5 marks)
3. **Introduction:** This section should be concise and not more than 3-4 paragraphs. You need only consider the information pertaining to the Oropune wastewater treatment plant, key features of the design, and introduce the aim of this study. You should have a basic understanding of flocculation and disinfection. You do NOT need to include general, generic information such as, 97% of the earth's surface is water, etc. (10 marks)
4. **Methods**: You can consider summarizing the information into 3 different categories for a more organized approach. The sections to consider include: In the field, the lab experiments and the analysis. (10 marks)

   Results: This sections should have summarized figures and tables based on the values obtained from the class data in the spreadsheet available online at:

   https://docs.google.com/spreadsheets/d/12BIp8WAuiXQ9TSd-Kx45j-c0bCkWAYwJihCAnNxRMoE/edit?usp=sharing

   - The figures you obtain from the spreadsheet are considered raw values and hence copy and pasting these are NOT considered summary data. So you need only include summary figures and tables. (10 marks)

- There should also be a written paragraph or two that has a summary statement and also in text referencing to Figure 1 or Table 1, etc. This written summary is as important as the figures. (10 marks)

5. **Discussion:**
   You should mainly consider the results from the fecal coliform and TSS experiments in the lab.
   - Did the removal efficiencies of fecal coliform and TSS improve after flocculation and disinfection processes were adopted?
   - Are there optimal concentrations or conditions? More is not always better. Consider both extreme of the spectrum. What happens if the concentration of alum and chlorine were too low? What happens if the concentration of alum and chlorine were too high?
   - What vital information did the controls in both experiments provide?
   - From the results obtained, were EMA standards met? (20 marks)

6. **Conclusion**: Include a 1-3 sentence summary of aim and results obtained in the lab. (5 mark)

7. **References:** An effort should be made to consider the sources of information used. Keep the format consistent. For example, if you use APA in text, use it in the reference list etc. You should have at least 3-5 references, with at least two that are journal citations. (5 marks)