**Guidelines for the Final Analytical Paper (BIOL 288)**

The final paper should be a manuscript-style paper with the following sections in this order:

* Title
* Abstract
* Introduction
* Methods
* Results
* Discussion (*abbreviated*)
* References
* Tables and Figures

**Title**

A title should be the fewest possible words that accurately describe the content of the paper. An improperly titled paper may be confusing, so be specific. If the study is of a particular species or chemical, name it in the title. If the study has been limited to a particular region or system, and the inferences it contains are similarly limited, then name the region or system in the title.

*Limit 20 words*

**Abstract**

A well-prepared abstract enables the reader to identify the basic content of a document quickly and accurately, determine its relevance to their interests, and thus decide whether to read the document in its entirety. The abstract concisely states the principal objectives and scope of the investigation where these are not obvious from the title. More importantly, it concisely summarizes the results and principal conclusions. Do not include too many details of the methods, as the abstract must be concise. Omit all references to the literature and to tables or figures and omit obscure abbreviations and acronyms, even though they will be defined in the main body of the paper. **Sections of the Abstract are as follows: (1) Objective; (2) Approach and Results; and (3) Conclusions**

*Limit 250 words*

**Main text (Introduction, Methods, Results, and Discussion)**

*Limit 3000 words*

**Introduction**

The introduction begins by introducing the reader to the topic and pertinent literature. A common mistake is to introduce authors and their areas of study in general terms without mention of the major findings. **The introduction should enable the reader to clearly place the current work in the context of what is already known**. Try to introduce references so that they do not interfere with the flow of your argument: first write the text without references so that it reads smoothly, then add in the references at the end of sentences or phrases. Every publication has a different style when you submit a paper, so for this assignment, choose a style and **be consistent throughout**!

An important function of the introduction is to establish the significance of your current work. Having introduced the pertinent literature and demonstrated the need for the current study, you should state clearly the scope and objectives. The introduction can finish with the statement of objectives, aims, or hypotheses. Either way, the reader must have an idea of where the paper is heading to follow the development of the evidence.

**Methods**

The main purpose of the Methods section is to provide enough detail for a competent worker to repeat your study and reproduce the results. Scientific research should be reproducible, and you must provide a basis for repetition of the study by others. The usual order of presentation of methods is chronological. However, related methods may need to be described together and strict chronological order cannot always be followed. If a method has been previously published, only the name of the method and a literature reference need be given. Required sections of the Methods sections are as follows:

1. Study population: Describe the sample source population and exclusion criteria. Also, indicate that the study participants gave written informed consent.
2. Provide the definitions and/or assessment of the exposure, outcomes, and covariates/confounders.
3. Statistical analysis: A statistical method section should be present without comment on results. Also, indicate your alpha (significance) level and statistical software used for the analysis.

**Discussion (abbreviated)**

The Discussion section can be generally divided into 3 separate sections as: 1) Introductory paragraph, 2) Intermediate paragraphs (***abbreviated***), 3) Concluding paragraph.

The introductory paragraph contains the main idea of performing the study in question (without repeating the Introduction section of the manuscript). Summarizing the basic findings of the experimental studies in the first paragraph is generally recommended.

Intermediate paragraphs included the interpretation of data, implications of these findings, and potential future research to follow. Ambiguous findings and current controversies in this type of research should be analyzed and examined in this section. Comparisons to similar work in your field may be discussed here. **The only part of the intermediate paragraphs that is required for this assignment is that you should indicate the major strengths and limitations of the study (i.e., reflect on potential sources of bias and/or confounding)**; it will reflect the objectivity of the authors.

Conclusions should be written in a concise manner utilizing words, not numbers. Information conveyed in this section should only be taken from the research performed; therefore, the conclusion and inferences should be mentioned using “constrained” and “not too strongly assertive” statements (i.e., you should refrain from too much speculation and overstating claims that are not supported by the data). Also, in the last paragraph, future directions or potential clinical applications may be emphasized.

**References**

Every journal has different reference styles and submission requirements. Therefore, as long as you’re consistent in your use, I do not require a specific style. However, you should **list all of the references** used in the manuscript. A reference manager software (e.g, EndNote or RefWorks) is recommended.

**Figures and Tables (maximum of 4)**

Begin each table on a separate page. Each table should be numbered followed by a brief title. Please remember that tables prepared in SAS are not acceptable. Also, Excel prepared tables are not accepted unless embedded within your text document. Abbreviations used in the table must be defined in a footnote to the table. **At least two tables are required for this assignment.**

Place each figure on its own page followed by the legend; figures are not required.