**Rubric for BI 474 Paper**

Name: Topic: Date:

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| **Title** | **High Level Achievement** | **Mid Level Achievement** | **Low Level Achievement** | **Missing 0 pts** |
| Title | Title is informative and concise (5 pts) | Title has minor flaws such as slightly insufficient level of detail or slight wordiness. (4 pts) | Title has major flaws such as omission of central concepts or excessive length. (3 pts) |  |
| **Comments on Title:** | | | | |
| **Abstract** | | | | |
| Scope and Purpose | The abstract clearly articulates the question under study, concisely placing it in an appropriate context (3 pts) | The question could be articulated more clearly or lacks appropriate context. (2 pts) | The question under study is articulated poorly or inaccurately. (1 pt) |  |
| Methods Summary | The abstract clearly and concisely summarizes the methods used in this study.(2 pts) | The abstract adequately addresses the methods used in this study, but should be clearer and/or more concise. (1.5 pts) | The methods are not addressed well, because they are excessively detailed, excessively vague, or several methods are missing. (1 pt) |  |
| Results Summary | The results are described clearly and concisely, referencing techniques, and including values when appropriate. (3 pts) | The results could be described more clearly and/or concisely, but are generally adequate. (2 pts) | The results are not well described or are described inaccurately. (1 pt) |  |
| Conclusions | Major conclusions of the study are clearly articulated. (2 pts) | Major conclusions of the study are provided, but contain minor errors, such as lack of clarity. (1.5 pts) | Major conclusions of the study are provided, but contain major errors, such as significant inaccuracies. (1 pt) |  |
| **Comments on Abstract:** | | | | |
| **Introduction** | | | | |
| Main Topic | The introduction begins with a general observation that clearly conveys why readers (especially biologists) should care about the topic at hand. (5 pts) | The beginning of the introduction is overly technical or overly simplistic for the intended audience (your fellow scientists/biologists!). (4 pts) | The main topic is unclear or not fully relevant to the rest of the introduction. (3 pts) |  |
| Background Information | Sufficient, relevant background information is summarized clearly and concisely, highlighting the question or unresolved problem being addressed by this study. (5 pts) | Relevant background information is included, but some key concepts are not addressed or unnecessary details are provided. (4 pts) | Minimal prior research is summarized, or the intro strays far off-course into topics of minimal relevance. (3 pts) |  |
| Objectives of Current Work | Objectives are clearly articulated and contain sufficient detail. (5 pts) | Objectives contain minor errors, such as excessive experimental detail or unclear phrasing. (4 pts) | Objectives are inaccurate or contain other major problems. (3 pts) |  |
| Organization and Flow | Introduction is well organized and follows a logical train of thought. Transitional phrases and sentences are used to ensure that each idea flows into the next. (5 pts) | Introduction has minor organizational problems or gaps in logic. Some transitions may be awkward. (4 pts) | Introduction is disorganized and/or reads like a laundry list of facts that lacks logical coherence. (3 pt) |  |
| **Comments on Introduction:** | | | | |
| **Materials & Methods** | | | | |
| Level of Experimental Detail | An appropriate level of detail is provided; a competent scientist could repeat the experiments described. (5 pts) | Minor errors, such as lack of clarity, slightly excessive detail, or missing composition of some reagents. (4 pt) | Major errors, such as missing entire steps of the protocol or extremely excessive detail. (3 pts) |  |
| Writing Style | Writing is concise, in past tense, and passive voice. (5 pts) | Minor errors, such as wordiness or use of volumes rather than concentrations. (4 pts) | Major errors, such as consistent use of present tense and/or consistent use of first person (I, me, or we). (3 pts) |  |
| **Comments on Materials and Methods:** | | | | |
| **Figures and Tables** | | | | |
| Organization | In figures with multiple panels, graphs/images are sized similarly, neatly aligned, and clearly labeled as A, B, etc. (1 pt) | In figures with multiple panels, all graphs/images are present but have minor issues, such as uneven sizing or slight misalignment. (0.75 pt) | In figures with multiple panels, all graphs/images are present, but have significant issues, such as being on-top of each other (as opposed to side-by-side), or panel letters are missing. (0.5 pt) | Graphs included as separate figures. |
| Graphs | Graph(s) are attractive. Axis labels are accurate and legible. Color (or lack thereof) is used appropriately. (3 pts) | Graph(s) have minor problems such as missing units on axis labels, poor color choice, or somewhat inappropriate size. (2 pts) | Graph(s) have major problems, such as no axis labels, significant size issues (much too big or much too small), etc. (1 pt) | Only one or no graphs included in draft. |
| Table | Table(s) are formatted as described in Knisely, including correct positioning of caption, neat alignment of data, capitalization of first word of each column heading, and no use of vertical lines. (2 pts) | Table(s) have minor formatting issues, such as inconsistent data alignment or excessive use of lines.(1.5 pt) | Table(s) have significant problems such as missing data or headings. (1 pt) | Table(s) not included |
| Captions | Figures and tables are numbered correctly, have a clear and concise title in sentence format (only first word and proper nouns capitalized). Captions concisely describe how data were collected, state the number of trials, and include summary statistics. (4 pts) | Captions have minor errors, such as overly vague titles, excessively detailed descriptions of methods, or formatting issues (e.g. – inappropriate use of abbreviations, capitalized all words of caption title, incorrect tense, etc.). (3 pts) | Captions have significant errors, such as no title, or no description of methods. (2 pts) | No caption included in draft. |
| **Comments on Figures and Table:** | | | | |
| **Results - Text** | | | | |
| Rationale | Rationale is clearly stated at beginning of paragraph. (4 pts) | Rationale has minor errors, such as wordiness or lack of clarity or awkward placement within paragraph. (3 pts) | Rationale is inaccurate or has other major errors. (2 pts) | Rationale not provided. |
| Data Description | Trends in data are described succinctly and accurately. (4 pts) | Data description has minor errors, such as excessive detail or lack of clarity. (3 pts) | Data description is inaccurate or has other major errors. (2 pts) | Data not described. |
| Take-Away | Paragraph closes with a clear and concise take-away message that accurately represents the data. (2 pt) | Take-away message has minor issues, such as slight over-interpretation or slight lack of clarity. (1.5 pt) | Take-away message is present but inaccurate and/or unclear. (1 pt) | No take-away message included. |
| **Comments on Results Text:** | | | | |
| **Discussion** | | | | |
| Results Overview | As the results are reviewed, variability in the data is addressed appropriately, and findings are integrated with each other. (4 pts) | Overview of results contains one or two minor flaws, such as excessive focus on sources of experimental error or failure to integrate results with each other. (3 pts) | Overview of results contains significant errors, such as omission of some results or no mention of variability in the data. (2 pts) |  |
| Integration with Literature | As the results are reviewed they are compared and contrasted with published findings, offering possible scientific explanations for major discrepancies. (5 pts) | Published studies are referenced but integration with results is superficial. (4 pts) | Published studies are only referenced in the context of background information, not results. (3 pts) |  |
| Future Studies | Future studies proposed are interesting and logical, grounded in evidence gathered through the current study as well as published research, and aimed at filling a gap in knowledge that was uncovered by the current study. (4 pts) | Future studies are an appropriate and logical extension of the results but could be more innovative or better supported. (3 pts) | Future studies are either uninteresting minor tweaks (different time points, concentrations, etc.) or over-reach dramatically (e.g. – clinical trial). (2 pts) |  |
| Broader Significance | The discussion thoughtfully address the potential long term implications of the results, explaining how the new findings will move the field forward, ultimately shaping either clinical practice or the environment or industry, etc. (4 pts) | Broader significance is either (1) too limited in scope, focusing primarily on results, and not potential long-term impacts or (2) a rehash of the introduction, failing to leverage new findings. (3 pts) | Discussion ends abruptly with only a passing mention of broader impacts. (2 pts) |  |
| Organization and Flow | Discussion is well organized and follows a logical train of thought. Transitional phrases and sentences are used to ensure that each idea flows into the next. (4 pts) | Discussion has minor organizational problems or gaps in logic. Some transitions may be awkward. (3 pts) | Discussion is disorganized and/or reads like a laundry list of facts that lacks logical coherence. (2 pts) |  |
| **Comments on Discussion:** | | | | |
| **Technicals** | | | | |
| Grammar and Spelling | Report was carefully proofread and contains no (or almost no) typos. (3 pts) | Report could have been proofread more carefully, as it contains some misspellings and/or grammatical errors. (2 pts) | There is little evidence of proof-reading, as the report contains many misspellings and/or grammatical errors. (1 pts) |  |
| Reference Selection | Lab report (especially introduction and discussion) cites a sufficient number of scientific articles. Appropriate review articles were chosen to support broad statements. Statements about specific experimental results are supported with citations of the primary research articles that contain the data described. (5 pts) | Reference selection has minor errors, such as a slightly insufficient number of citations or reliance on review articles when describing specific published results. (3 pts) | Introduction contains too few citations and/or relies on inappropriate sources, such as textbooks, Wikipedia, or other web-sites that were not subject to scientific peer review. (2 pt) |  |
| In-Text References | In-text references are included and formatted properly, following the Name-Year System guidelines in Knisely. (2pts) | Minor errors in citation format. (1.5 pts) | Major errors in citation format. (1 pt) |  |
| End References | End references are included and formatted properly, following the Name-Year System guidelines in Knisely. (2 pts) | Minor errors in citation format. (1.5 pts) | Major errors in citation format. (1 pt) |  |
| Response to Feedback on Drafts | Feedback on drafts was thoroughly and thoughtfully addressed. (4 pts) | Feedback on drafts was dealt with adequately. (3 pts) | Feedback is only minimally addressed. (2 pts) |  |
| **Comments on Technicals:** | | | | |

Points earned = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_