Research Proposal, Presentation and Final paper Grading rubric

BIOL 4110

The most important features we are seeking are: critical analysis; evidence that the work was conducted fully and completely; clarity of expression, attention to detail including grammar; meeting the requirements of hypotheses, literature reviewed, methods; and a projected workplan of what gets done when.

We will evaluate all work at three levels: basic expectation (grade 60-70), novelty and scope (70-80), and critical thinking (80-100). That is to say, if you do the minimum without demonstrating an assessment of novelty of your research question including a connection of your work to the literature, and without critical assessment of the topic (i.e. alternative hypotheses), then your mark will likely fall within the 60-70 range.

# Grade of 60-70: Your question, why it’s interesting or important, hypotheses, predictions, and methods

* Title: The title describes the subject matter of the article
* Group members (alphabetically by last name, with student numbers) + Group number
* Introduction:

Question (Novelty)

Hypotheses (Causal mechanisms, competing mechanisms? If …) Prediction(s) (then …)

* Methods

clearly connected to hypotheses/predictions description of the dataset you have or hope to obtain replication unit, #,

stats

Anticipated results (final figure(s)) and impact

* Consistent reference format and reference list included with sufficient references to explain proposal
* Presentation has no language and/or grammatical errors (5-mins, 2 mins for questions). There’s a penalty for talks that go over time.
* Proposal Maximum is 3 pages of written text (Times New Roman, double spaced, 12 point font), including figures, but not including tables, references, etc. (meaning you can add extra pages).
* Figures (and tables)

Link to the text is clear, explicit, and useful

If you present your data, designs, or ideas in a table or graph, include a title describing what is in the table/graph ("Enzyme activity at various temperatures", not "My results".)

For graphs, you should also label the x and y axes.

# Grade of 70-80: Novelty and connection to the literature

* Development of the broader ecological context for the research.
* A compelling description of work done by others relating to the hypothesis.
* A brief but thorough and critical interpretation and analysis of prior work.
* A clear linkage of evidence to main ideas and logical development of ideas is demonstrated. Justifications for proposed research are convincing and compelling.
* Specific methods are well described with advantages & disadvantages considered, and justification for choices is compelling.

# Grade of 80-100: critical analysis including competing hypotheses

* Two or more competing or complementary mechanistic hypotheses and corresponding predictions that are logically and elegantly developed – what are you testing?
* Potential outcomes and inferences are described and broader significance – the bigger picture
* Implications and novelty of research stated in a compelling way – global significance.

|  |  |
| --- | --- |
| Item for evaluation | Maximum Score  /70 |
| Identifiable and clear main question | /15 |
| Problem statement – the ecological uncertainties in the field, why the research matters or is important | /15 |
| Hypothesis – basic identification of what’s being tested, with  predictions (prediction – If the hypothesis is true, then we would expect to see the following…] | /10 |
| Methods: clear connection to the hypotheses, with the design being used sufficient to test the question | /10 |
| Methods: replication, design and layout, equipment, stats? | /5 |
| Methods: feasibility | /5 |
| Anticipated Results and timeline – what will happen and when | /10 |
| **Good – Novelty and connection to the literature** | Maximum Score  /10 |
| Development of the broader ecological context for the research | /5 |
| A brief but thorough and critical interpretation and analysis of prior work in the literature. | /5 |
| **Excellent – Critical Analysis including competing hypotheses** | Maximum score  /20 |
| Two or more competing or complementary mechanistic  hypotheses and corresponding predictions were logically and elegantly developed. | /10 |
| Potential outcomes and inferences are described and broader  significance and implications of research stated in a compelling way. | /10 |