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.

Given that this is a fourth-year course, we have high expectations regarding evaluation. On the other hand, we find that all of you are more than capable of hitting it out of the park, so to speak, given your extensive course experience including BIOL 3010. We would love everyone to receive A's in this class, but it must be earned.

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