**Research Report and Final Presentation**

**Overview**

The final elements of the project is your opportunity to practice communicating scientific research in a written and oral format. Your research paper and presentation should clearly communicate your study rational, hypothesis, methods, results, and how it fits into the broader context of research in this field. It should also follow proper scientific conventions. While you are reading manuscripts as you prepare your annotated bibliography and conduct additional background research for your research paper, be sure to make mental notes of elements, figures, and writing styles that you like, and those that you find less useful.

**Research Paper**

Your research paper must be in traditional scientific paper format. It must meet the following formatting specifications:

* Times New Roman, 12 pt, single-spaced font
* Title page with the title, authors, and abstract
* Main text must be four full pages and include the Introduction, Methods, Results, and Discussion
* The Author Contribution, Literature Cited, Tables and Figures must be included after the main body of the text, in that order. These sections to **do not** contribute to the four page minimum.

Your paper must also include all of the following sections:

* Title – Select an informative title.
* Authors – List all authors (group members).
* Abstract – The abstract must include the rationale, hypotheses/objectives/questions, abbreviated methods, results, and broader context. The abstract must be 250-300 words long.
* Introduction – Include all background information that your reader needs to understand your project. Lead your reader to understand why you chose the specific research topic. The final paragraph must include specific project hypotheses, research questions, and/or objectives.
* Methods – Include proper documentation of all methods and data that you included in your analyses. All analysis tools **must** have versions. All publicly accessible data must include proper citations.
* Results – Describe the outcomes of all analyses. This section must include *at least one table and two figures*.
* Discussion – Place your findings in a broader context. Was your hypothesis supported? Are there any caveats your reader should keep in mind while interpreting your findings? What questions are still left outstanding, what analyses would you suggest taking on next?
* Author Contributions – Many papers include author contribution statements. Use the following guidelines to write an author contribution statement. Your statement should include the name of each author followed by all of the project elements that they contributed to. Guidelines: <https://www.elsevier.com/authors/policies-and-guidelines/credit-author-statement>
* Literature Cited – Your citations should follow the formatting requirements for the American Journal of Botany: https://cms.botany.org/file.php?file=SiteAssets/publications/ajb/ajb\_Lit\_Cited\_Instructions.pdf
* Data – Include all of your data files, both input and output, in one zipped folder. The data must include a metadata file describing all of the elements that are present in your data file.

**Final Presentation**

Presentations must be 12-15 minutes long and created in PowerPoint. Each member of the group must present a portion of the project. Your presentation should include an Introduction, Methods, Results, and Discussion section.