

## Tips for writing successful Ecology Lab reports

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Successful scientific writing is an essential skill for ecologists. Success is usually guaranteed if you tell your story (i.e., present and explain your data) clearly and effectively in a specific, tried-and-true way (see format below). If you make sure the essential take-home messages are presented in the correct places, readers will know what you did, why you did it, what it meant, and be able to evaluate its merits. Remember, science is not complete unless it has been communicated to an audience of peers—you must develop your communication skills if you are going to be a successful scientist.

### Some formatting things:

- Provide a clear, informative title.
- Use the IMRaD style: Introduction, Methods, Results, and Discussion.
- Label each of the above sections (except Title).
- Include the names of all group members.
- Include the date.
- Use double spacing throughout.

### What goes in each section?

- Introduction: Provide 1) relevant background information, 2) objectives, and 3) hypotheses for your study. Scientific hypotheses are preferable to null hypotheses.
- Methods: Provide enough information about how you collected and analyzed your data so that someone could repeat your study. Be sure to include which statistical test you performed to answer each question (be explicit).
- Results: Report your data as **text**, and tables and figures with appropriate captions. Follow the guidelines provided for creating effective graphs, as well as Dr. Hill's hints for writing statistical results. For example, when you present your statistical results, be sure to 1) use plain English, and 2) report the 'essential' stats in parentheses. The essential statistics include: 1) calculated test statistics, p-values (if available), and a measure of sample size (e.g., number of replicates or degrees of freedom). Clearly say whether your results were statistically significant.
- Discussion: Summarize your overall findings and explain what they mean. Address whether your results did or did not support your hypotheses presented in the Introduction. This is your opportunity to show your thinking skills—you must address **why** things turned out the way they did.

### Some comments about style:

- Write clearly and concisely. Short 'to-the-point' reports get better grades than long-winded expositions. Also, do not use a 5-dollar word when a 2-cent one will do (e.g., 'use' instead of 'utilize').
- Check for spelling and grammatical errors.
- Using a **first-person active voice** is preferable to third-person.
- Use **past tense** when speaking of your own data (present tense is fine when speaking about results from previous studies or other previously known information).

## Ecology lab report checklist:

Did you...

- List your name(s) and the date?
- Title your report?
- Provide headings for each section?
- **Introduction:**
  - Write at least 1-2 sentences describing relevant background?
  - Write all objectives of the study?
  - Write a scientific hypothesis (i.e., prediction and a 'because' clause) for each objective?
- **Methods:**
  - Clearly describe your methods of data collection (where, when, how many)?
  - Clearly describe your methods of data analysis?
  - List all statistical analyses used and describe what each analysis was used for?
- **Results**
  - Describe all of your results in complete sentences?
  - Include key descriptive statistics or refer to figures that include the descriptive statistics?
  - Provide all essential statistical output (n or df, test statistic[s], p-value) for each statistical test in parentheses?
- **Discussion**
  - Summarize the findings for each of your hypotheses?
  - Provide potential reasons for all of your results?
  - Make an overall conclusion for your study?
- Proof-read for spelling and grammar issues?
- Write concisely?
- Include all required graphs?
- Provide a figure caption for each graph?
- Double space all text?