

Winter Ecology — CU Mountain Research Station Project Presentation Writing Guide

The main objective of the final presentation is to present your Individual Project to the class. Because there's no written report for your project, your PowerPoint file needs to convey more information than what you will have time for during your oral presentation. Your presentation should be concise and direct, with enough content to convey your logic and put the project in a **winter ecological perspective**. Use the 'notes pane' in PowerPoint to fill in the details of what you found and what you want to say. Some guidelines for creating just such a hybrid presentation/written report are described below.

I. Overall Content & Organization

- Use the following framework for your PPT, using the sequence of slides:
 - Title slide
 - Introduction (2-3 slides)
 - Methods (1-2 slides)
 - Results (3-5 slides)
 - Discussion and Conclusions (1-2 slides)
 - Literature Cited

These slides are described in more detail in their own sections below.

- Plan your writing: organize your thoughts and data, and sketch the report before actually writing. This will help maximize your time efficiency and lead to a concise, well structured presentation.
- When you compose the slides, be certain that one logically leads into the next. Don't include the slides as self-contained, disconnected bits of information and images. Make certain that you know what your story is and tell it clearly. Discard slides with information that you find interesting but which do not pertain to your main message.
- Allow for between 10-15 slides for a 10 min talk, depending on how much time each slide takes (some will be quick, others will require more explanation). Your oral presentation is limited to 10 min, with 5 min for questions – to get your PPT to run smoothly within that period, practice your talk. Part of your **grade is on how well you get your message across**. Presentations that go overtime quickly distract from your message.
- Write in bulleted format. Include no more than 3 or 4 bullets on a single slide and try to make all the points on a single slide relevant to a single specific point.
- Use the 'notes pane' in PowerPoint's to fill in the details of what you want to say and more specifics of what you found (this is where to add relevant information that you won't have time to say). This window is below the 'slide pane' in both Normal and Slide views.
- Keep the different sections of the report discrete, i.e. methods in the methods section, results in the results section, and leave discussion and interpretation of those results for the discussion section.
- Use metric units throughout. An exception—just for convenience and just in the context of this class—ok to also give elevation in feet.

II. Style

- **Slide Style**
 - Review the PowerPoints tips in "Making PowerPoint Slides: Avoiding the Pitfalls of Bad Slides." <http://instaar.colorado.edu/~kittel/PPT_LayoutTips.ppt> (ppt, 110k). Omit the 'Outline' slide for short presentations, as in this class.
 - Choose a single background for the entire presentation that is not too busy and distracting but visually engaging.
 - Use a heading for each slide. **However, this can be omitted if it's crowding the slide.**

- PowerPoint is a fun program with many bells and whistles (animations, backgrounds, ability to layer text and images, etc.). You can be creative, but remember that you are using PowerPoint as a tool to communicate information. You are being **graded on content and visual and oral clarity** of your presentations, not your mastery of PowerPoint. Less can be more. Fancy presentations won't help in this evaluation; distracting ones will diminish your ability to communicate information.
- Use large enough font sizes so that the projected presentation is easily visible from the back of a large room (including text associated with figures such as axes labels). Also, don't use a font that is too ornate and therefore distracting. Simplicity in presentation while still being visually engaging is key.

• **Writing Style**

- Above all, produce accurate, clear, and concise writing
- Use positive statements and avoid non-committal statements (e.g. use "the data indicate..." rather than "the data could possibly suggest...")
- Be succinct and focused – don't pad out your report with irrelevant data, discussion, or images. Avoid repeating facts and thoughts.
- Avoid long, complex statements – break these down into several subcomponents, each with a separate bulleted entry. Check for excessive use of commas and conjunctions (i.e. and, but, or) - you can often split these points into several bullets. Avoid non-informative abbreviations such as "etc.," or "and so on".
- Reduce jargon to a minimum. **Avoid use of non-standard acronyms, that is, don't expect your audience to know those particular to the topic you're studying nor to remember abbreviations of your own creation.** Avoid excessive use of nouns as adjectives.
- When presenting the work of others and your field findings, write in the past tense.
- Avoid footnotes. Cite papers as (Author, year) in slide text and notes following statements that are supported by the work of others. For 'Author,' include only last names. If there are more than two authors, use only the first's name followed by 'et al.' (meaning 'and others'). Be sure to include the full reference in your Literature Cited slides.
- Define terms as you go – if not on a slide then orally and in the notes.
- Italicize Latin binomial species names, with Genus name in upper case and species name in lower case. For example: *Homo sapiens*

• **Graphics & Tables**

- Use clear, concise, descriptive titles and explanatory legends for figures (and, if needed, any tables). Be sure to label axes (and rows/columns), include units.
- Check that everything is legible when projected.

III. Slide Specifics

• **Title Slide**

- Your title should tell your audience what your talk is about -- e.g., succinctly what's the comparison or issue, what organism(s), and generally where. Use a subtitle to add information if needed.
- Include your name, course name, semester, year, and location (CU Mountain Research Station)

• **Introduction**

- In this section state the nature of the problem, the aims and objectives of the study, and background information.
- Clearly state the question(s) you sought to answer.

- State the hypotheses you evaluated in your study. If testing using statistical analyses, state these as **null and alternate hypotheses** (H_0 , H_1)
- Put your project in a winter ecological perspective. Provide the context for the study you will be presenting – Address the following questions:
 - Why do the study? What are the specific objectives? And how do they fit into a broader scientific context?
 - Why is what you're doing relevant to winter ecology? to the ecology of other seasons?
- What is the existing state of knowledge of this topic? Use **references** to provide this context.
- Relate your question to the course's field site - the Niwot Ridge Biosphere Reserve, or barring that, to the Rocky Mountains or other winter-snow mountain ecosystems.

• **Methods**

- Clearly show you can test your question.
- Layout your **sampling design**. In your oral presentation, be concise given time presentation constraints. Put the details in the notes pane, and then summarize in the slide.
- State if your design is with replication (vs. with pseudoreplication) and if random. If these are lacking (ok given the short timeline for projects), say what the consequences are re interpreting your results.
- Use figures/diagrams to explain experimental set-up where appropriate.
- Include the following: characterization/location of the study site(s), experimental design, data collection techniques, and the methods/equipment used to record, summarize, and analyze data. If using **statistics** (required in most cases), give the statistical method.
- Minimize descriptions of well known procedures (e.g., do state that you used, for example, 4x4 m quadrats, but not that you put up stakes, used a compass, etc.). Use references where appropriate.
- State any **key non-trivial limitations** in your methods. Considering time constraints for your presentation, a general discussion of sources of error can go in the Notes pane. If there's something critical that might adversely affect your results, state in your slide (and then also revisit the issue in your Discussion).

• **Results**

- Summarize your field data with graphs and descriptive text. **Avoid tables, unless necessary to make a point about your original observations**. Justify use of all figures by discussing their content and labeling them clearly.
- Do not include raw data.
- Be sure to include on slide with graphs the p -value for any test (only out to 2-3 significant digits – e.g. $p=0.087$). Also include on the slide what statistical method you used.
- Make sure all calculations and analyses are relevant to the hypotheses you are testing and the overall objectives of the study.
- Describe your data and the patterns, trends, and relationships observed. Summarize these points in text on the slide or at least orally (and in notes). **Any point worth making should have a bullet or a graph/illustration to help your audience follow your thinking**.
- Proceed from most general features of the data to more specific results.
- Use and evaluate all the data you report and do not be discouraged if your results differ from published studies or from what you expected. There may be confounding factors that you weren't able to account for in your experimental design, or underlying stochastic variability (i.e., natural random noise) may be stronger than the signal you are trying to detect, especially if you have a small number of replicates.
- End the results section with a slide summarizing your findings – use bullets.
- Do not interpret (i.e., draw conclusions from) your data until the Discussion section.

- **Discussion**

- This section should include an interpretation and evaluation of your findings.
- Refer back to the original question you were asking (or hypotheses you were testing). Draw conclusions based on your findings, compare with other studies.
- Refer back to the review material you presented in your Introduction as part of your discussion.
- Draw positive conclusions wherever possible.
- Identify sources of error and any inadequacies of your techniques **that may have substantially altered the results**. Otherwise, a general discussion of sources of error belongs in your Methods (see that section).
- Speculate on the broader meanings of the conclusions drawn. But make the distinction between drawing conclusions supported by your findings, and deriving a new hypothesis (e.g., based on deduction or induction from your conclusions and other information).
- **However, all discussion points should stem directly from your results – avoid trying to connect them to things at a far grander scale than what you were doing. That is, avoid expounding on the topic (as in lecturing your audience on environmental political action, etc.); rather – use this section to explain what’s happening in your results in light others’ work and what this might mean ecologically for the system you were working in.**
- Address any future study that your research suggests.

- **Conclusions (or Summary)**

- Conclusions (or Summary) slide should only summarize points you’ve already presented. End your oral presentation on this slide - to give your audience time to mull over as asking questions.

- **Acknowledgements**

- Acknowledge sources of special gear and helping hands in your fieldwork, etc. as you feel appropriate.

- **Literature Cited**

- List all and only the references cited in the text (do not include references that you don’t use)
- All references should be listed in full, and alphabetically by first author
- Use a consistent citation format.
- Only use references pertinent to your study and your data. Cite references in the slide text or notes, citing by author(s) and date – as noted above under ‘Writing Style’

IV. General Comments

- Be creative in your thinking about your results and interpretation – play around with different variations in organization before completing your report.
- Do not force conclusions from your results by omitting or fudging findings that do not support pre-conceived conclusions.
- Justify your ideas and conclusions with data, literature, and with sound reasoning. Do not use your presentation as a forum for ideas not directly addressed by your research.
- Remember that your oral presentation is limited to 10 min, with 5 for questions. As noted in ‘Overall Content and Organization,’ above – to get your Ppt to run smoothly within that period, practice – practice – practice. Practice your talk out loud until it feels right.