

Scientific Writing Handout

Scientific Writing Elements

- **Introduction:** Overview on purpose/goals/findings/data
- **Material/Method:** Elaborate how data was obtained
- **Result:** Focus on providing data objectively
- **Discussion:** Focus on interpreting data subjectively

Introduction

Sets **tone** by providing background information

- Introduce topic
 - Start broad, make it coherent to those not familiar with the field
 - Narrow down to question/hypothesis being asked/answered
- Define difficult terminology
 - Abbreviations
 - Jargon
- Discuss main points in brief
 - What was done
 - How it was conducted
 - Explain findings
 - Elaborate on findings

Material and Methods

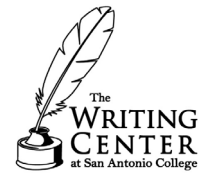
Straight forward explanation on how the experiment was conducted

- The Materials and Methods section should be written in the past tense
- Indicate items used for experiment
- Demonstrate that you used scientifically valid methods and provide the reader with enough information to recreate your experiment
- Ensure chronological order
 - clearly state the procedural steps you took
 - remember to include the model numbers specific settings of all equipment used
- It is important to provide enough information that the reader can follow your methods without referring to the original source

Results

Objective point of view

- Identify all valuable tables, graphs, and figures.
 - Add a couple of descriptive sentences that summarizes each result, referring to corresponding table and figure numbers
- Write a short summary about each data set



- Present key findings in a purely objective manner and lay the foundation for the Discussion section.

Discussion/Conclusion

Subjective point of view

- Discussion should form a self-contained story tying together your Introduction and Results sections
- Interpret your results subjectively
 - Begin by explicitly stating the main finding of your research
 - Address your question and hypotheses with specific evidence from your results
- If there are multiple possible interpretations of a result, clearly lay out each competing explanation
 - Presenting and evaluating alternative explanations of your findings will provide clear opportunities for future research

Notes:

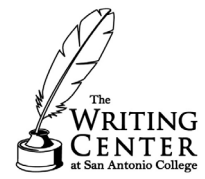
Reference

- Anderson, R. (2000). Intuitive Inquiry: Interpreting Objective and Subjective Data. *ReVision*, 22(4), 31.
- Knisely, K. (2017). *A student handbook for writing in biology* (5th ed.). Sunderland, MA: Sinauer Associates, Inc.
- Turbek, S. P., Chock, T. M., Donahue, K., Havrilla, C. A., Oliverio, A. M., Polutchko, S. K., Shoemaker, L. G., & Vimercati, L. (2016). *Scientific Writing Made Easy: A Step-by-Step Guide to Undergraduate Writing in the Biological Sciences*. Bulletin



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of the Ecological Society of America, 97(4), 417–426. <https://doi-org.tamusa.idm.oclc.org/10.1002/bes2.1258>