

HOW ELEMENTS OF WRITING LOOK DIFFERENT IN THE SCIENCES

While there is significant continuity across academic writing in the humanities, social sciences, and sciences, there are also some important differences that you should be aware of. Below are notes on how specific elements of academic writing may occur within scientific writing.

Thesis:

In the sciences, writing is rarely thesis driven, as it often is in the humanities and “softer” social sciences. Instead, papers are often framed based on a question, prediction, and/or hypothesis, or sometimes as a synthesis of the literature (e.g., in a review paper). This is different from other types of academic writing because a hypothesis can be supported or disproved, while a thesis must remain unchanged throughout a piece of writing.

Motive:

Writing in the sciences is motivated by a larger problem or question. This problem is often specific to the scientific discipline, rather than a larger global context. The question or problem usually arises from a review of the existing literature and previous research findings. The motive is typically reduced to only one or two sentences at the start of the introduction and may disappear almost entirely in things like lab reports.

Evidence:

Science relies heavily on evidence to support an argument. Evidence includes new data from experiments and/or observations, as well as evidence from primary sources (data papers) and review or theory papers.

Science writing emphasizes *synthesis* of sources over summary or close reading of sources. Because the particular words used to describe data are usually less important, evidence is almost always paraphrased; quotes are used very sparingly (e.g., for definitions).

Analysis:

In the sciences, interpretation of the results is often presented separately from the data and statistical analyses: usually in a separate “discussion” section. Analysis also might include a reinterpretation of someone else’s data or theories, a proposal of a new model or theory, or implications for a real-world problem. It is rare to spend significant time analyzing a single source unless the specific results within that source are being challenged.

Structure:

Much of scientific writing is organized in a standardized IMRD template, which varies slightly depending on the discipline or publication in which the writing occurs:

- **A**bstract: concise summary of introduction, methods, results, and discussion
- **I**ntroduction: summary of prior research, identification of questions
- **M**ethods: how data were collected and analyzed
- **R**esults: new data (often summarized in figures/tables)
- **D**iscussion / conclusion: interpretation, flaws, next research steps

Stitching / Transitions:

Because science is often structured by a predetermined template, transitions are less necessary between sections. Transitions in the sciences are rarely literal (e.g., “Now we turn our attention to...”). Within paragraphs, however, transitions remain as important as in any writing.

Style:

In the sciences, clarity is very important. Writing should be concise and precise. Fancy imagery or ornate language can distract the reader’s attention from key points, so analogies, metaphors, and other figures of speech are rarely used. Quantitative (rather than qualitative) descriptions are used whenever possible. Writing should remain objective; there is little room for subjectivity in science. Any claims the author makes must be based on facts and data, not intuition or emotion.

Credit: Elissa Jacobs, University Writing Program, 2020.

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