A STUDENT'S GUIDE TO SCIENTIFIC WRITING

Scientific writing includes any writing with the purpose of communicating replicable research to the reader. It can include lab reports, article reviews, or journal articles. Scientific writing differs from writing in the humanities in that the voice of the writer is not heard, the writing is as concise as possible, and the writing uses simple, plain language. Scientific writing also uses the passive voice.

TITLE

The title of your paper should be stand alone as a descriptive explanation of the aim and approach of your research. Avoid mentioning the results and conclusions, and avoid puns and abbreviations.
Ex: "The Effects of Light and Temperature on the Growth of Populations of the Bacterium, *Escherichia coli*"

AUDIENCE

The audience of scientific writing encompasses readers from an array of backgrounds. Not all of these readers are experts on the topic they're reading. Imagine that you are writing for a student a semester or two behind you.

ORGANIZATION

- Most scientific writing follows the IMRD format, which divides the content based on sections.
- IMRD stands for **Introduction, Methodology, Results, and Discussion**. Each of these sections has a distinct purpose within scientific writing.
- The bulk of paragraph-based writing is found at the beginning and end (Introduction, Methodology, and Discussion), while the least amount of paragraph-based writing is found in the middle at the Results section.
- Keeping the IMRD format in mind can help organize the flow in all scientific writing assignments.

HYPOTHESIS

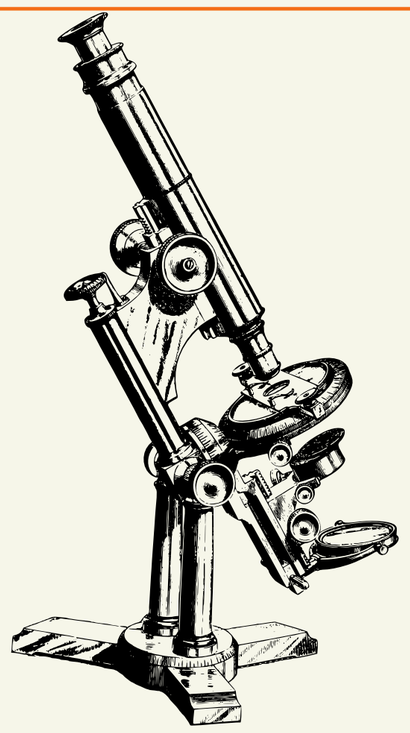
- Like a thesis statement, the **hypothesis** ties together the whole scientific writing assignment. Even if you do not have explicit instructions to write a hypothesis, doing so will strengthen your writing.
- The hypothesis is usually an "If (something occurs), then (this will result)" statement, but it is really any statement that summarizes the question you are trying to answer in your research.

Example hypothesis:
"It was predicted that as the temperature of the solution (independent variable) *increased, the rate of dissolution* (dependent variable) *would increase."*

- Refer to your hypothesis throughout your assignment. Your methodology shows how you tested the hypothesis, and your discussion explains how your results relate to your hypothesis.

WORD CHOICE

- Use simple, specific terminology instead of complex, vague words.
- Define technical terms and abbreviations.
- Know the correct spelling of technical terms in their plural and singular forms.
- Do not try to over explain concepts, as this makes it appear as though you do not fully understand the topic.
- Keep your sentences clear and simple.
- Never write in the first person (I, we) or the second person (you).



TOO COMPLEX	SIMPLER OPTION
Utilized	Used
Made a measurement of	Measured
At that point in time	Then
Performed an analysis	Analyzed
Due to the fact that	Because

PASSIVE VOICE

The passive voice places interest in the object experiencing the action rather than the person doing the action, which is the focus of scientific writing.

Passive Voice:
"The data was analyzed."

versus

Active Voice:
"The researchers analyzed the data."

COMMON MISTAKE:

A common issue with the passive voice occurs when you write a clause and the subject doesn't correlate with the verb. To avoid this issue, make sure that your verb follows the correct subject or rewrite the sentence to make it simpler.

Incorrect Example:
"Using Coomassie blue stain, the proteins were visualized."
Correct Example:
"The proteins were visualized using Coomassie blue stain."