

OWLS Writing Guides:

SCIENCE WRITING language and style



When writing for the sciences, your language should be clear, concise, and precise. Here are some ways to achieve this style while maintaining the characteristic objectivity of science writing.

Use active and passive voice verbs appropriately:

In an active-voice sentence, the subject is the doer of the action expressed by the verb:

| | | |
|-----------------------------|--------------------|--|
| Subject (doer/actor) | active verb | object of verb (receiver of the action) |
| <i>We</i> | <i>analyzed</i> | <i>the data.</i> |

In a passive-voice sentence, the subject is the receiver of the action expressed by the verb:

| | |
|-------------------------------------|---|
| Subject (receiver of action) | passive verb (helping verb + past participle of a transitive verb) |
| <i>The data</i> | <i>was analyzed.</i> |

Active voice sentences are clear, direct, and usually more concise than passive sentences. They make your writing more vigorous and engaging.

| | |
|----------------------------|---|
| Passive and wordy: | Specimens were collected and slides were made by the researchers. |
| Active and concise: | Researchers collected specimens and made slides. |

- When using active voice with first person point-of-view (*I analyzed, we tested*), avoid statements that suggest subjectivity or personal bias—*I feel, We believe*, etc.
- Passive voice is useful, appropriate, and unavoidable in some instances, such as when the doer is unknown or when it is unnecessary or unimportant to name the doer (*The element radon was discovered in 1900*), when the idea can only be expressed in passive voice (*Bacteria are found on most surfaces*), or when you wish to focus on the research and not the researcher (*Data from three randomized trials were factored into the results*). Also, because science writing should convey objectivity, some professors prefer that students use the passive voice, particularly when writing lab reports. Be sure to follow your professor’s instructions.

Prefer single verbs, not wordy or compound verb phrases:

| | | | | |
|-----------------|---------------------|--------------------|--------------------|------------------|
| Wordy: | perform an analysis | is in violation of | proceed to examine | has an encounter |
| Concise: | analyze | violates | examine | encounters |

Hint: Look for *nominalizations*—the noun form of the verb (e.g., analysis/to analyze)—to check for this wordy construction.

Don’t use more words than you need; avoid needless and inflated phrases:

| | | | | | |
|-------------------------|--------------------|------------------|----------------------|-----------------------|---------------|
| Inflated phrase: | for the purpose of | on a daily basis | due of the fact that | at this point in time | subsequent to |
| Concise term: | for | daily | because | now | after |

HINT: Circle prepositions to help you spot wordy prepositional phrases that can be pared down to a single word.

Place subjects and verbs close to one another to aid sentence clarity:

When the subject and *verb* are separated by a long phrase or clause, readers may lose track of meaning.

| |
|--|
| Unclear: The osmoregulatory organ, which is located at the base of the third dorsal spine on the outer margin of the terminal papillae, <i>expels</i> excess sodium ions under hypertonic conditions. |
| Clear: Located on the outer margin of the terminal papillae at the base of the third dorsal spine, <u>the osmoregulatory organ</u> <i>expels</i> excess sodium ions under hypertonic conditions. |

Note how the revised sentence substitutes a phrase (located . . .) for a clause (which is located . . .), further reducing wordiness and aiding clarity.

Eliminate excessive qualifiers and redundancies:

| | | | | |
|-------------------|---------------------|-----------------|----------------|-----------------|
| Redundant: | completely finished | perfectly clear | component part | past experience |
| Concise: | finished | clear | part | experience |

HINT: Check your adjectives and adverbs to find unnecessary modifiers.

Use clear, direct, simple words over showy, complex, or 'fancy' words:

| Fancy or complex: | Simple and clear: | Fancy or complex: | Simple and clear: |
|-------------------|-------------------|-------------------|-------------------|
| indicator | sign | endeavor | try |
| penultimate | next to last | optimal | best |
| facilitate | help | methodology | method |
| elucidate | show | impact (verb) | affect |

Use detailed, specific, and concrete language:

| Vague: | Specific: |
|---|--|
| The development rate was fastest in the higher temperature treatment. | The development rate in the 30°C temperature treatment was ten percent faster than the development rate in the 20°C temperature treatment. |

Works consulted in the creation of this document:

<https://cgi.duke.edu/web/sciwriting/index.php>

<http://www.writing.utoronto.ca/advice/specific-types-of-writing/296-writing-in-the-sciences>

<http://writingcenter.unc.edu/handouts/sciences/>