Writing in scientific style is a skill that you develop through study and practice. This handout will help you understand and apply the basic elements of scientific style.

General Style

Like all writing, scientific writing is an act of communication between an author and an audience about an issue. However, certain expectations exist about the style of scientific writing that may not exist for other kinds of writing. Scientific style favors explicit, direct communication over subtlety and nuance. Scientists do not read journal articles for mystery and suspense: they read to learn and evaluate new information.

To hone your scientific style, write so that your ideas are easily identifiable and accessible.

Verbs

Use Tense Appropriately

Use past tense to discuss an action (e.g., an observation or experiment) that took place in the past. Additionally, use the past tense to present your own findings, since they are not yet accepted as general truths.

Example: To determine the scope of the problem, we surveyed fifty university presidents. We found...

Use present tense for generally accepted facts.

Example: Cognitive development continues into adulthood.

Use present perfect tense to discuss an action (e.g., an observation, research, or experiment) that started in the past and has continued into the present.

Example: Several studies have attempted to isolate this pathway.

Use future constructions when proposing future research.

Example: We will examine the differences between the two populations.

Note: For more information on the different verb tenses, please see our handout on this topic.

Use Precise, Forceful Verbs

Strong verbs add precision and force to your writing. Weak verbs cause your writing to be wordy and dull.
Weak verbs (also known as light verbs) include “do,” “have,” “make,” “take,” “occur,” “get,” and “cause.” Some passive constructions fall into this category as well: “was seen,” “was noted,” “was done,” and “was observed.” Weak verbs often accompany nominalizations (see below).

Weak Verb: An increase of speed to 50 km/h was seen to occur.
Strong Verb: Speed increased to 50 km/h.

Weak Verb: Caffeine intake caused an acceleration in heart rates.
Strong Verb: Caffeine intake accelerated heart rates.

Use the First Person Appropriately
Though you may have heard that you should never use the first person (i.e., “I” and “we”) in scientific writing, this advice is increasingly outdated. The first person is often more direct and forceful than the third person—in other words, it is more readable.

Example: We surveyed fifty high schools . . .

Since your “Methods” section focuses on presenting material so that others can replicate it, the first person is usually not appropriate there. Use the third person for this section instead.

Example: Next, participants were given the survey in a sealed envelope.

However, some audiences (e.g., a professor, committee chair, or specific journal) might find the use of first person inappropriate. When in doubt, consult the style guide for your discipline.

Use Active and Passive Voice Appropriately
Voice describes the relationship of the subject to the verb. There are two voices in English: the active and the passive. The difference is one of emphasis. In the active voice, the subject performs the action of the verb; in the passive voice, the subject receives the action of the verb. The passive voice is formed using a form of the verb “be” and the past participle.

Active: We surveyed fifty high schools.
Passive: Fifty high schools were surveyed by us.

As you can see, the active voice is more concise and direct. Use the passive voice when you want to emphasize something is receiving an action or when the agent is unimportant (such as in your “Methods” section). Otherwise, use the active voice.

Note: For more information on active and passive voice, please see our “Voice” handout.

Nouns and Pronouns

Use Clear Pronouns
Pronouns improve readability by reducing the number of times you have to repeat a noun. However, pronouns can confuse the reader if their antecedents (i.e., the words the pronouns replace) are unclear.

Unclear: When the volunteers addressed the students, they were attentive. (Were the volunteers or the students attentive?)

To clarify the antecedent, rearrange your sentence.
Clear: The students were attentive when the volunteers addressed them. (The students were attentive.)

When using demonstratives (e.g., “this” and “that”) to refer to elements in previous sentences, be sure to clarify the antecedent.

Unclear: Samples were chopped, boiled, and frozen before being placed into storage. This decreased...

Clear: Samples were chopped, boiled, and frozen before being placed into storage. This process decreased ...

Note: For more information on how to use pronouns, please see our handout on this topic.

Avoid Nominalizations
A nominalization is a noun derived from another part of speech, usually a verb. Verbs take objects; nouns do not. Instead, nouns employ prepositional phrases to do the equivalent work of a verb’s object. For this reason, sentences containing nominalizations tend to be longer. Use verbs and objects for actions instead of nouns and prepositional phrases.

Nominalizations: Our assessment of the damage lead to the conclusion that there was a failure in the structure.

Verbs: We assessed the damage and concluded that the structure failed.

Sentence Structure

Use Transitions
Transitions are the glue that holds your sentences, paragraphs, and sections together. They also function as signposts for your reader. Use them to show relationships between ideas and to guide your reader through your text.

Chronology: after, before, during, first, next, second, then
Location: above, around, behind, below, in, on, under
Similarity: again, also, furthermore, likewise
Difference: but, however, nevertheless, on the contrary, on the other hand
Result: as a result, consequently, hence, therefore
Example: for example, for instance, namely, specifically
Summary: finally, in brief, in conclusion, in fact, in short, in sum
Emphasis: even, indeed, in fact

Note: For more information on transitions, please see our handout on this topic.

Use Strong Parallelism
Parallel structure lets your reader know that information is related and of equal importance.

The easiest way to achieve parallelism is by matching parts of speech (e.g., matching nouns with nouns, verbs with verbs, etc.) or, if using entire phrases, by matching larger grammatical structures (e.g., matching a verb and a direct object with a verb and a direct object).

Weak Parallelism: At my previous job, I was in charge of receiving applications, interviewing candidates, and trained new hires.

Strong Parallelism: At my previous job, I was in charge of receiving applications, interviewing candidates,
and **training** new hires.

*Note: For more information on parallelism, please see our handout on this topic.*

**Vary Sentence Length, Favoring Shorter Sentences**

Sentences are units of thought. When too many ideas crowd into a single sentence, the reader has a harder time distinguishing the most important one. Try to include only one main idea per sentence. If you have to, break complex sentences into simple ones.

**Long and Wordy:** It can be argued that sentences constitute both a unit of language and a unit of thought, and writers, therefore, should avoid placing too many ideas into a single sentence because the reader might not be able to distinguish which one is the most important.

**Short and Concise:** Sentences are units of thought. When too many ideas crowd into a single sentence, the reader has a harder time distinguishing the most important one.

To further strengthen your sentences, keep your subjects and verbs close together. Place the most important elements of the sentence in the first six to eight words. Also, avoid needlessly long introductory clauses.

*Note: For more information on the various sentence structures, please see our “Sentences” handout.*

**Avoid Dangling and Misplaced Modifiers**

A modifier is a word or phrase that provides additional meaning to another element of the sentence. When it is unclear which element of the sentence the modifier is modifying, the modifier is dangling or misplaced.

**Example:** After taking **their medication**, we placed the mice into the maze. (Did the researchers or mice take the medication?)

**Example:** We observed the subjects enter **through the window**. (Did they watch them through the window or did they enter through the window?)

There are two quick ways to fix a dangling or misplaced modifier: either add the implied actor into the modifying phrase or move the phrase closer to the element it modifies.

**Example:** After **the mice** took their medication, we placed them into the maze.

**Example:** **Looking through the window,** we observed the subjects enter.

**References**
