Grammar and style notes for scientific writing
Scientific writing style
Word choice: make certain that every word means exactly what you want to express. Choose synonyms with care. Be not afraid of repetition.

Avoid vague expressions which are typical for the spoken language. E.g. the interpretation of words which approximate quantities ("quite Large", "practically all", "very few")

Make clear what the pronouns refer to. Simple pronouns like this, that, these, those are often the most problematic, especially when they refer to the previous sentence.

Avoid ambiguous and illogical comparisons. These are often due to missing words or nonparallel structures. E.g. "Female students draw concept maps more often than male students."

Anthropomorﬁsm: do not attribute human characteristics to machines

Incorrect grammar and careless sentence structures can create ambiguities!
Use illustrative titles which describe the essential in a chapter or a section.

Write a brief introductory paragraph in the beginning of each chapter or section with subsections.

Divide the text logically into sentences and paragraphs.

Place the adjective or the adverb as close as possible to the word it modifies.

Write numbers as digits when they refer to sizes or exact measurements.

Use punctuation to support meaning.
Say only what needs to be said
Short words and short sentences are always easier to comprehend
Weed out too detailed descriptions
Don’t describe irrelevant or trivial observations
Avoid wordiness
Use no more words than are necessary
Avoid too long sentences and paragraphs
Verbs: Stay within the chosen tense
Use verbs rather than their noun equivalents and Prefer active to passive voice
Avoid long noun strings!
Each pronoun should agree with the referant in number and gender.
Transitional words help to maintain the flow of thought, notice: some transitional words (while, since) can be used in several meanings
Do not use emphasis (italics) when it is not needed, and metaphors can sometimes help to simplify complex ideas. However, Don’t overuse them Don’t mix several metaphors in one sentence
Objective

- Use the 3rd person rather than the 1st person
- Use emotionally natural expression
- Use words which are free from bias (implied or irrelevant evaluation)
- Select an appropriate degree of specificity
- Differences should be mentioned only when relevant
Verbs
Number and person

- When the subject is singular third person (she/he/it), the verb needs suffix -s (in the present, positive sentence).
- Be careful with special phrases:
  
  "A number of new experiments were done" (plural)
  "Plenty of time was spent..." (singular)
- If the number of the subject changes, retain the verb in each clause.
Tenses (temporal forms)

- Default: the present
- Past or present prefect (but not both) when you describe previous research (literature review)
- Past tense to describe the experiments and their results
- In scientific writing, the default is present (is)
- Use past tense (was) only for good reason
- Past perfect (had been) is seldom needed
Active or passive voice, which person?

Use of passive voice

a.) In active voice the actor is known, while in passive voice it is unknown
b.) In the basic form of passive, you can express also the actor
c.) It is often recommended to prefer active voice, but in scientific writing passive voice is sometimes convenient
d.) Often the purpose determines the voice
e.) However, do not overuse passive, and do not chain passive expressions
”It is” and ”There is/are”

a.) A formal subject ”it” is sometimes used in passive expressions: ”It is often recommended [reference] that...”

b.) Typical verbs in this expression are: say, suppose, consider, expect

c.) ”There is/there are” is a similar expression, but now we don’t need the passive

d.) The verb is nearly always ”be” (sometimes ”exist” or something else)

e.) Notice that the verb follows the real subject’s number. E.g. ”There were a lot of outliers in the data set 1.”
Other passive expressions

a.) ”We” can be used as passive. E.g. ”In Chapter X, we define the basic concepts”.

b.) ”You” is sometimes used as passive, especially in manuals.

c.) ”People” when you refer generally to people.
Person?

a.) Basic rule: avoid the first person (no opinions, but facts)
b.) Referring to yourself: you can talk about "the author". E.g. "All programs have been implemented by the author."
c.) Gender-neutral language: when you refer to an unknown user, student, etc.
Do not use short forms ”isn’t, can’t, doesn’t”, but ”is it, cannot, does not”.

”be verb+ing” form when something is currently happening or takes some time

Some verbs require that the following verb is in -ing form:

{enjoy, avoid, succeed in, finish, keep, mind, practice, risk + verb + ing}

Special phrases: ”be used to”, ”be (un)likely to”
"Noun syndrome" = use of common verbs \{be, do, have, make, \ldots\} + a noun

E.g. "We can get better understanding...", "Different people have different responses to the methods"
THANK YOU