

Writing Style Guide

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- *Define all terms.* Fully define all the mathematical and problem-specific terms before you use them. Do not use undefined terms in proof sketches or overviews. For example, unless the word “valid” is defined in your proof, do not write “Thus, vector a is valid.”
- *No vagueness.* Do not use vague statements. Either make your statements explicit or remove them.
- *Use structure to explain “Why?”.* A reader should always know why they are reading your paragraphs and sentences. Structure your ideas to help the reader understand your content. Use paragraph topic sentences, and be sure the rest of the paragraph matches with the topic. Use section structure and section topic paragraphs.
- *Present tense.* Only use the present tense. Do not use future, past etc. tenses. For example, instead of saying “In Section 6, we will show...” say “In Section 6, we show...”
- *Provide interpretation of notation.* Use explicit mathematical notation to clarify your meaning, but follow the symbols and formulas with a clear English-language interpretation to help the reader decipher them.
- *Include diagrams.* Include diagrams whenever possible. Diagrams clarify your proof idea greatly and make the formalisms considerably easier to follow.
- *Long captions.* Write paragraph-long captions for your tables, pictures, and diagrams. Often, people will leaf through your writeup reading only the captions.
- *Use active voice.* It should always be clear who or what is executing the verbs in your sentences. For example, don’t say “it is desired that X ,” but say “we desire X .” Active voice is clearer and more succinct than passive voice.
- *Keep sentences short.* Sentences that are long and include multiple sub-phrases are often difficult for a reader to understand. Keep your sentences short, and let ideas flow between sentences.
- *Do not overuse notation.* Do not use mathematical notation if you can be precise with a short English phrase instead.
- *No proofs outside claims.* Do not prove anything outside of a theorem or lemma. Have clear theorem and lemma statements and associated proofs.

- *Use lemmas.* Find small self-contained lemmas which help your proof. Reading the proofs for these small lemmas is much easier than reading a long multi-page proof.
- *No judgments.* Your writing should not include any emotionally heavy words or words implying judgement. Remain solely factual and let the facts speak for themselves.
- *No parenthetical remarks.* Do not use parenthesized expressions. The use of parenthesized expressions indicates that your thoughts are not properly organized. Reorganize your ideas in a way that does not require parenthesized expressions.
- *No pronouns.* Do not use pronouns. Always repeat the full noun instead. Using the full name is always clear and easy to read. Pronouns never help the reader, and are often confusing. Here is a list of common pronouns: this, that, these, those, it, etc.
- *Show. Don't tell.* Never use phrases such as “Obviously,” “It is easy to see,” “Clearly,” “Note that,” etc. They are an indication of you putting off the explanatory work on the reader. Instead of saying “Note that a equals b ,” write “Since a equals c and c equals b , we have a equals b .”
- *Pick one.* Providing multiple options to the reader makes your writing both less intelligible and less persuasive. Pick the best option and go with it. For example, instead of writing “Consideration of A or B in under C, D, or E is important,” write “Consideration of A under D is important.”
- *No citations as nouns.* Do not use citations as nouns. Instead of writing “In [1], it is shown that a equals b .” write “Smith et al. show that a equals b [1].”
- *Final edit: does every word have a purpose?* When editing, read each sentence individually, asking “What am I trying to communicate with this sentence? Am I communicating it in a clear and concise manner?” Remove anything that either has no clear purpose or fails to achieve the intended purpose.