Professor Bernstein's Top 13 Writing Tips

by

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1. Respect paragraphs.

The paragraph is the basic unit of writing. A paragraph focuses on a single point or thought. The first sentence of each paragraph announces that thought, while the last one usually summarizes it. Every paragraph must be indented (in spite of LATEX style). Every theorem, proposition, lemma, corollary, and remark is *exactly* one paragraph.

2. Motivate your reader.

Tell the reader the background and motivation for your work in a logical, coherent manner. Stress those points that motivated you to pursue the work and that make the work interesting for the reader. Have a "story line" outlined in your mind, and tell it through a series of paragraphs that follow in a logical sequence. Stress how your paper goes beyond earlier work in the field without degrading prior work. Be generous in giving credit to prior researchers since you will be one someday.

3. Write clearly.

Write so that there is no confusion about what you are saying. If there is, then you may not understand yourself what you mean. Explain everything as clearly as you possibly can. Avoid "encoding" your paper in excess symbols, acronyms, etc., since it is supposed to be read by humans. Envision your audience as you write. You can never write too clearly.

4. Provide sufficient detail.

Give the reader enough detail to understand and reconstruct your results. Skip trivial steps, but provide enough "stepping stones" so that other researchers can understand your techniques and reconstruct all of your work.

5. Clarify your assumptions.

Make sure the reader knows what you are assuming at each point in the paper. Specify which assumptions are global (throughout the paper), and which are local (only in effect in that section or for a given result). To characterize the generality of your results it is also sometimes helpful to clarify assumptions that you are NOT making.

6. Use impeccable logic.

Every statement of a mathematical nature (and others as well) must have absolutely precise logic. What is assumed, what are the consequences, how are the variables qualified ("there exists" versus "for all"), what is necessary, what is sufficient, etc.

7. Choose good notation.

Choose attractive, informative, natural notation to make the paper have a "clean" feel to it, and to help the reader grasp the formulas. It is acceptable to abuse notation as long as you know that you are doing it, it causes no harm, and you tell the reader.

8. Spell perfectly.

Every word in a paper must be spelled perfectly. Beware of words you tend to misspell and watch out for them. Use a spell checker. Note words with alternative spellings (e.g., modeling versus modelling) and consciously choose one to be consistent. Watch out for "lead" (Pb) and "led."

9. Use correct grammar.

Grammar can be a tricky business. Understand sentence structure, and use it correctly always. Watch out for subtle grammatical errors such as parallel structure, shifts in tense, mode, and voice, etc. It's OK to sometimes split infinitives for emphasis.

10. Use the correct word.

Know when to use "which" and when to use "that" when starting a clause. The word "that" starts a clause whose presence is essential to the noun it modifies. The word "which" introduces a clause that introduces additional, but nonessential, information. Only use the word "so" in the pair "so that." Avoid "very" since it is not very informative and sounds informal. Watch out for easily confused words such as "alternate" and "alternative" and know the difference.

11. Use correct punctuation.

Know all the rules of punctuation. Pay attention to commas, especially in compound sentence structure and clauses. Know when to use hyphens, especially in adverb-adjective constructions in the nominative and predicate nominative cases ("...well-known book" versus "The book is well known.")

12. Display informatively and aesthetically.

Construct figures that make a point or illustrate a result. Display the data in an attractive way that allows the reader to quickly grasp the content.

13. Cite judiciously and accurately.

Choose references that reflect a balanced framework for your work, both historical and technical. List references in a consistent format according to the style of the intended journal. Cite every reference accurately, including correct journal, volume, pages, etc.