1. How to Write Mathematics

"...you must have something to say, and you must have someone to say it to, you must organize what you want to say, and you must arrange it in the order you want it said in, you must write it, rewrite it, and re-rewrite it several times, and you must be willing to work hard on mechanical details such as diction, notation, and punctuation. That's all there is to it." [P. Halmos, How to Write Mathematics, 1973[1]]

1. Say Something
   - Just as there are two ways for a sequence not to have a limit (no cluster points or too many), there are two ways for a piece of writing not to have a subject (no ideas or too many).
   - The first disease is the harder one to catch. It is hard to write many words about nothing, especially in mathematics, but it can be done, and the result is bound to be hard to read.
   - The second disease is very common: there are many books that violate the principle of having something to say by trying to say too many things.
2. Speak To Someone
   - The second principle of good writing is to write for someone. When you decide to write something, ask yourself who it is that you want to reach
   - It helps me to think of a person, perhaps someone I discussed the subject with two years ago, or perhaps a deliberately obtuse, friendly colleague, and then to keep them in mind as I write.
   - The writer must anticipate and avoid the reader's difficulties.
3. Organize First
   - In the organization of a piece of writing, the question of what to put in is hardly more important than what to leave out; too much detail can be as discouraging as none.
4. Think About The Alphabet
   - Good notation has a kind of alphabetical harmony and avoids dissonance .
   - Either $ax + by$ or $a_1x_1 + a_2x_2$ is preferable to $ax_1 + bx_2 + \cdots$

2. Plagiarism

Plagiarize creatively, but quotes can be dangerous if you don't acknowledge the source.

According to Prentice-Hall's Guide to Authors, imitation ceases to be the sincerest form of flattery and becomes something much more culpable if a reasonable person could not believe that you didn't have the other chap's book open in front of you as you wrote yours. That said, remember that you can't copyright ideas as such, but only ways of expressing them.

[D. Knuth, Mathematical Writing, sections 25 and 30[2]]

When to look away.

In many respects, avoiding plagiarism in mathematics is much the same as in other subjects. The MLA Handbook instructs writers to "remember that you must document everything that you borrow—not only direct quotations and paraphrases but also information and ideas" [2, p. 55]. The purpose is to understand these sources and present your undestanding, with ideas, reasoning, and certainly prose, in your own words.

When explaining a mathematical idea in a prose paragraph, you should not have the source open in front of you when writing. Take notes (from more than one source, if possible), and then write at least a paragraph, using your own sentences, without looking at the source. (This is particularly challenging if writing in a second language.)

When to look.

If is appropriate to copy precise statements such as definitions, theorems, claims, or algorithms, with no quotation marks. In such cases you may look directly at your source; paraphrasing is encouraged but not necessary. A reference is required unless the statement is [*so well know* that *it is in almost any statistics textbook one could find at a thrift store*].

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[1]http://www.cs.xu.edu/math/math391/Spring2009/Halmos1.pdf
[2]http://www.jmlr.org/reviewing-papers/knuth_mathematical_writing.pdf

3. Honor Code

Here's a description of the honor code at Colton's undergraduate institution[3]:

> The honor code system is a philosophy of conduct rooted in honesty, integrity, and understanding, that allows members of a diverse student body to live together, interact and learn from one another in ways that protect both personal freedom and community standards.

> An academic honor code focuses solely on upholding academic integrity and proscribing lying, cheating, and stealing in matters pertaining to college business.

I propose that our class adopt the following honor code.

> Our class is a community of integrity; therefore, we, the students, seek to promulgate a community in which integrity is valued, expected, and practiced. We are honor bound to refrain from cheating, stealing, or lying about class-related business. We are obligated to examine our own actions in light of their effect on the community, and we are responsible to address any violations of these community standards.

One-liner:

> *I pledge that this work was completed with academic integrity.*

4. Intellectual Property

Morally, this course should offered in the public domain (CC-0)[4]. However, because we'll read from various sources (textbooks and articles), this course will instead be licensed as creative commons 4.0 non-commercial attributions share-alike.

With credit to the original authors, the intellectual content of this course (e.g., lectures, articles, readings, notes, problem sets, handouts, quizzes) is provided to you at *no cost* in *fair use*[5].

The creativity is theirs, the mistakes are my own.

I acknowledge and appreciate the statistical writings of Roger Peng, Wes McKinney, Jake VanderPlas, David Diez, Mine Cetinkaya-Rundel, Christopher Barr, among others.

5. et cetera

1. You are all welcome here. See `https://www.colorado.edu/campus-accessibility`.

2. CU Boulder has excellent support for our community:

   - Student Conduct and Conflict Resolution 303-492-5550
   - Counseling and Psychiatric Services 303-492-2277 (24/7 phone suppport)
   - Office of Victim Assistance 303-492-8855 (24/7 phone suppport)
   - International Student and Scholar Services 303-492-8057
   - Center for Inclusion and Social Change 303-492-0272
   - Veteran and Military Affairs 303-492-7322
   - Student Support and Case Management 303-492-7348
   - Medical Services 303-492-5101 (24/7 nurse line)
   - CU Boulder Police Department 303-492-6666 (non-emergency line)

3. If you qualify for accommodations because of a disability, please pass me your accommodation letter from Disability Services in a timely manner. Information on requesting accommodations is located on the Disability Services website (`https://www.colorado.edu/disabilityservices/students`). My office hours are here: `https://go.oncehub.com/coltongrainger`.

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[3]`https://www.collegeofidaho.edu/academics/honor-code`
[4]`http://creativecommons.org/about/cc0`
[5]`https://libguides.bc.edu/copyright/`