

Suggestions on Writing for Assignment Reports (EAS 471, March 19, 2014)

- Assignments are to be written in 12 point font, double spaced. Please submit your assignment *electronically* (.pdf preferred, other formats acceptable)
- Unless stated otherwise on the instructions, the page limit is 6 pages of text, not counting your collection of figures and/or tables, and references
- Organization. The reader needs to be treated to an “Introduction”, the body of your results (perhaps, in the context of our course: “Theory” and “Discretization” and “Numerical Parameters” and “Results”...), and a “Conclusion.” Please do use headings. Subdivide your work thoughtfully.
- An important aspect of assignment reports, and one that deserves consideration, is your choice of an organizing principle. No formula can be given. The most elementary organization — and typically the default — is the structure that ensues from simply answering a series of questions that had been posed by the instructor, in the order given. In effect, here you simply adopt an organization that you have *assumed* was demanded by the task definition. This isn’t wrong — but it is always worthwhile to ask yourself whether some other line of organization might be more pleasing to you (and therefore, presumably, your reader(s)).

To some extent, the structure of your report is (or may be) constrained by the given page limit: you’re after a compact, authoritative, well-organized presentation that leaves no doubt you understood and accomplished the given tasks. With appropriate use of equations, tables and diagrams, this can be achieved without a verbal slog. Perhaps this can be done with fewer than six pages — in general an N -page limit is not an *encouragement* to use N pages. If you can do the job in fewer, so much the better. One clear, well-planned page is worth two of tangential clutter. And if you are given a page limit and a prescribed font, do respect the specification (when you are faced with “official” writing, for example a grant application, you will be disqualified if you don’t follow the prescribed format and respect the limits).

- It is a good idea to collect all your figures and tables into an Appendix. Each should have its own number (e.g. Figure 1a) and an informative caption. Do not cram. In your narrative, specifically direct the reader’s attention to the table or figure when appropriate (“see Figure 1”).

- You don't have to use essay style. Point form is acceptable. However grammar and spelling do matter: where you use a full sentence, please make it a grammatical one. Errors make a passage harder to understand — try not to leave your reader guessing. Use a consistent tense. Don't mismatch singular and plural.
- Avoid giving a lengthy description in text of an operation or algorithm that can be captured precisely by a well chosen equation. It can be a challenge to achieve in words an unambiguous description of the function of even a simple code segment.

As an example, provided you have defined the meaning of the symbol n_i , say (for example) a series of daily snapshots of your bank balance during January, and indexed by day symbolized i , then you can convey the necessary operations for computing your January mean balance as

$$\langle n \rangle = \frac{1}{31} \sum_{i=1}^{31} n_i$$

You would of course make it clear what the symbol $\langle n \rangle$ means; and you might say a word about units, if it seemed appropriate. The key point is that to give a laborious paragraph of text would be uneconomical, and would represent a “dumbing down” that can (at least in the context of this class) be assumed to be superfluous.

- in professional science writing, equations are generally cited when first referred to, for instance

$$\bar{u} \frac{\partial \bar{\theta}}{\partial x} + \bar{w} \frac{\partial \bar{\theta}}{\partial z} = - \frac{\partial \overline{u'\theta'}}{\partial x} - \frac{\partial \overline{w'\theta'}}{\partial z}, \quad (1)$$

and the equation is afterwards referred to by its number: e.g. “In Eq. (1), $\bar{\theta}$ is the mean potential temperature and...” This should be done in such a way as to uphold grammatical integrity, such that the equation functions almost like a word or phrase in the sentence (and will often, as above, be terminated by a comma or period). Done right – which takes practice – this should lead to a nicely “flowing” logic (train of thought).

- Do *react to* and/or *interpret* your findings, perhaps in a manner that displays your experience and/or your curiosity.