

## BNFO301 – Introduction to Bioinformatics

### Final Project: Advice on Written Report

**Date due:** See the calendar. If you turn it in later, I do not guarantee that I'll be able to read it before I'm compelled to turn in grades.

**Medium:** Electronic. Any figures (and there will be figures) should be incorporated into the same file, either on the page where they're referenced (easier to read) or at the end of the file (easier to do).

**Audience:** Biology majors who have not taken BNFO301. Note that this is a different audience than your oral presentation. You may presume a knowledge that a biology major may know, but don't presume more than that.

**Format:** The usual for scientific communication:

- An introduction that starts from a point your audience can readily understand and grant to be important and ends with a specific question you intend to answer. The question will need to be quite specific, or else you'll have very little chance of answering it. To get from the general to the specific, you will no doubt need to refer to work done by others.
- A description of the methods you used to address the specific question, in sufficient detail that a knowledgeable person would be able to replicate your results. You should take pains to explain the principle behind your methods so that a biology major could understand them. However, you should not be compelled to explain things like how BioBIKE works. You may presume that a "knowledgeable person" knows the basics of working within BioBIKE (even though, of course, a random biology major would not).
- Results – not conclusions but actual results! These should be related in a way that would enable a biology major to understand their meaning and significance.
- Relationship between your results and the question at hand.

You may choose to have four separate sections, or you can combine elements of one section with another, if you think the story is told better that way.

**Citations:** I've no doubt that you will need to cite the work of others. When you do so, the citation should appear immediately after the claim. For example:

*Palindromic sequences have previously been shown to govern the stability of messenger RNA [19]....*

...

#### **References**

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19. Belasco JG, Beatty JT, Adams CW, von Gabain A, Cohen. SN (1985). *Differential expression of photosynthesis genes in R. capsulata results from segmental differences in stability within the polycistronic rxcA transcript. Cell* 40: 171–181.([http://dx.doi.org/10.1016/0092-8674\(85\)90320-4](http://dx.doi.org/10.1016/0092-8674(85)90320-4))

Choose any single format you like for the references, so long as a complete reference is given (one that would enable the reader to find the article), including the title of the article. A URL, as in the example above, is a service to the reader but goes beyond the call of duty.

**Collaboration:** You are free to discuss the reports within your group or with others. However, the actual writing of the report should be your own. Note that every introduction will be different, because every person in the class has a different project to introduce. You are certainly invited to read the reports of your colleagues and to refer to them in your own report.

**General advice regarding content:**

- Your goal is to tell your audience what you have found in your investigations in terms that allow us to understand the motivation and significance of your results. In particular, we should understand what specifically in your results (or the results of others) enables you (and possibly us) to reach the conclusions you reach.
- Make sense: It is not the responsibility of the audience to make sense of a blob of results you drop on us. Rather, it is your responsibility to help us make sense of what you present.
- Describe a human activity: Bare results are not very interesting. The process of obtaining those results may well be. At every stage, be sure that your audience knows **WHY** you did what you did. What was your motivation? What were you trying to find? Sometimes your motivations were misguided and you happened by chance upon an interesting result. It is your job as a storyteller to judge which wrong turns and dead ends contribute to your story and which detract from it.
- No result without a method: Your goal is to convince. No conclusion is convincing without supporting results. No result is comprehensible without a description of how it was obtained.
- No fact without a reference: If you appeal to a fact that is not generally known, cite a reference.
- Show actual results, but in a way that your audience can grasp within minutes. You may well have to recast the result from the original format given by a program.
- Use graphics: We are a visual species. We understand through images.
- Communicate to your audience: Think hard about what they may be expected to understand and what requires more explanation. Again, your audience is not me but biology majors unfamiliar with bioinformatics. Never use a word or phrase you don't understand. If you don't understand it, they won't either.