

Sequence alignment & search | Assignment + Paper presentation

Folks,

Your first assignment is to read and answer questions about an influential algorithm in bioinformatics for sequence comparison called **BLAST**, described in a paper published in 1990 (link is available on the class calendar).

As the original paper is really dense, for your assignment and paper presentation, I'm asking you to read the following:

1. A book chapter that describes the steps of the BLAST algorithm in an accessible way (Mount 2007), which is also available on class website:
<http://cshprotocols.cshlp.org/content/2007/7/pdb.ip41.full>
2. BLAST Handbook <https://www.ncbi.nlm.nih.gov/books/NBK153387/>

The two resources will be useful for looking up terminology:

1. BLAST Glossary <https://en.wikipedia.org/wiki/BLAST>
2. BLAST Practical details https://blast.ncbi.nlm.nih.gov/Blast.cgi?CMD=Web&PAGE_TYPE=BlastDocs&DOC_TYPE=BlastHelp

Students doing the assignment (aka not presenting)

Your assignment is to answer the questions in this form – <https://forms.gle/sfPSbZmNij2Bujot8> – and submit **before class on Friday, Jan 29**.

Presenters (no need to do/submit the assignment above)

In your presentation, explain how BLAST works based on the Mount 2007 book chapter. There are a bunch of statistical measures that are related to BLAST such as Bit score, E-value, and P-value. I will cover these in class on Friday before the presentation. So, you can assume that these measures will be covered.

Notes on preparing the presentation:

1. Use other resources beyond the paper to illustrate the problem, including illustrations, etc.
Provide citations for the source materials on the slide.
2. Avoid directly using dense figures directly from papers/other-sources. Instead, split complex multi-part figures in the paper into several slides; Capture/zoom-into parts of figure & annotate with boxes/arrows.
3. Avoid large blocks of text. Convert methods to flowcharts & annotate flowcharts.; You're welcome to draw neatly on paper & photograph it.
4. Be prepared to define phrases/terminology on your slide.; Google it, read-up; No problem if any idea/concept is still unclear even after reading. Just bring it up in class & we can discuss.