Main Seminar
Hot Topics in Bioinformatics

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Preliminaries

• Seminar talks: 35 minutes + 10 minutes questions
• English or German
  • If you give the talk in English, I will judge language quality mildly
• Reports: 8 pages in English or German
  • If you write the report in English, I will judge language quality mildly
  • Use Latex template (Springer LNCS) indicated on course web-page
• Criteria: Structure, Clarity, Precision of presentation
  → Use figures and drawings
  → Writing & Presentation skills very important if you consider a scientific career
  → check general writing tips and links on the course web page
• Grade: ½ talk + ½ report
• Grades: In the seminar my grading is very strict regarding language and presentation quality in the report & the presentation
Preliminaries II

• Don't underestimate the seminar 3 ECTS = 90 hours per semester

• No plagiarism
  → I am likely to notice!
  → I have caught someone almost every year thus far!

• Start working on the seminar on time!

• Know the background of the paper, that is, any algorithms/theories cited therein!
Topic Assignments

• To be determined
Deadlines

• Topic selection: May 8 → via email

• Supervisor assignment by Alexis via email after all topics are set

• (Virtually) meet with supervisor at least twice before your presentation!

• Talk slots: to be determined, but presentations will either be on June 18, June 26, July 9, July 16, July 23 or in a block toward the end of the semester

• (Virtually) meet with supervisor at least once before handing in report

• Report Deadline: September 28
Presentation Slots

• June 18
• June 25
• July 9
• July 16
• July 23
Schedule

- Today → how to give a scientific talk and write a report (Alexis)
- Presentations: To be announced
I'd like to give you as much freedom as possible. This will allow you to choose a topic you like. If you like a topic, you will give a better presentation and write a better report.

Topic selection:
- Pick any of the papers mentioned in the course.
- Pick any topic of the course and ask me for a paper.
- Contact one of my lab members that taught last semester (Pierre, Ben, Alexey) and ask them for a paper on their topic.
- Pick any interesting COVID-19 paper.
Course Topics

• Sequence Analysis
  • Indexing techniques & suffix trees
  • Operations on strings
  • Sequence alignment

• Phylogenetics
  • Parsimony
  • Likelihood
  • Parallel computing in phylogenetics
  • Discrete operations on trees
  • Bayesian Inference

• Population Genetics
  • Coalescent models/method
  • Mixed phylogenetic & pop. gen. approaches
Topic Selection II

• Chose a recent paper you find interesting from the following journals
  • *Bioinformatics*
  • *BMC Bioinformatics*
  • *IEEE Transactions on Comp. Biol. & Bioinformatics*
  • *Systematic Biology*
  • *Molecular Biology and Evolution*
  • *BMC Algorithms for Molecular Biology*
  • *Nucleic Acids Research*
Topic Selection III

- You may also present a Bioinformatics topic that was not presented in the winter class (e.g., coalescent simulations in population genetics or protein structure prediction) in a more teaching like manner.

- Do you think that it will work like this?
Reports

- Examples of good reports and nice slides from summer 2015 and 2016 are available on the course web page
  
  http://sco.h-its.org/exelixis/web/teaching/BioinformaticsModule.html
Supervision

• To talk to your supervisors make an appointment via email

• Don't wait until the very last minute before your presentation to make an appointment → make them straight after the topic assignment

• You will be assigned one of my lab members to help you with preparing the talk, the presentation & the report

• They can come to KIT to meet you, except if you want to visit our institute in Heidelberg one day, or better you meet them virtually right now

• Meetings with supervisors must take place
Your tasks

• Think about, search and select a topic by May 8
• Contact your supervisors (once assigned) immediately to schedule meetings! A total of at least three meetings are required!