

# 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:** 15 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:**  $\frac{1}{2}$  talk +  $\frac{1}{2}$  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 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 5** → via email
- Supervisor assignment by Alexis via email after all topics are set
- Meet with supervisor **at least twice** before presentation until **June 28**
- Talk slots: to be determined, but presentations will take place **after June 28!**
- Meet with supervisor **at least once** before handing in report
- Report Deadline: **September 15**

# Schedule

- Today → how to give a scientific talk and write a report (Alexis)
- Presentations: To be announced

# Topic selection

- I'd like to give you as much freedom as possible
- This will allow you to chose 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 (Tomas, Pierre, Alexey) and ask them for a paper on *their* topic

# 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 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 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
- Meetings with supervisors **must** take place

# Your tasks

- Think about, search and select a topic by **May 5**
- Contact your supervisors (once assigned) **immediately** to schedule meetings! A total of at least three meetings are required!