FI:IV110/IV114 Projekt z bioinformatiky a systémové biologie

The goal of this course is to carry out an independent analysis of bioinformatics data and to present the obtained results to an audience. The topic for the course in the Fall 2021 semester is Nanopore sequencing, however individual projects in systems biology can be granted to students registered in IV114. To showcase the applications of Nanopore sequencing and broaden their understanding, students can also attend invited talks that are part of the **IV105 Bioinformatics seminar**.

The course will be divided into the following sections:

1. **Nanopore sequencing: the applications (15.9. - 29.9.)**
   Students will be introduced to the theory behind Nanopore sequencing and will participate in hands-on exercises on basecalling, epigenetics, and metagenomics using publicly available Nanopore data. The lecture on 22.9. will be dedicated to the Systems biology.
2. **Presentations of the project proposals (6.10)**
   Students will work in pairs on their project proposals and present their projects to the class, including methods and expected results.
3. **Nanopore sequencing (13.10.)**
4. **Independent work on the projects**
   Groups will be advised by Monika Čechová (Nanopore sequencing) and Matej Lexa (Nanopore sequencing and Systems Biology).
5. **Miniconference**
   The students will present achieved results to an audience.

Requirements:

- Prepare and present the project proposal
- Prepare a sample/dataset for the project
- Analyze the data and submit the accompanying code to a repository (the code should be both tested and documented)
- Final presentations of the achieved results

Attendance

In-person attendance is not mandatory, with the exception of presentations (projects proposals + miniconference sessions). However, the students can request to present remotely. Whenever possible, sessions will be streamed or recorded for your convenience.