Practical microbial bioinformatics 001.2.5073 (3 credits)

Dr. Max Kolton

Semester Hours: 3 (lecture 2 hours + exercise 2 hours)

Number of participants: 10

Lecture: Thursday, 10:00 to 12:00

Exercise: Thursday, 13:00 to 15:00

Grade: 4 mandatory homework assignments, 25% each.

Course Description: This course is designed to provide students with practical hands-on experience in microbial bioinformatics. Students will learn various computational techniques and tools for analyzing microbial genomic and metagenomic data on personal computers and remote servers. The course will cover essential topics such as sequence alignment, genome assembly, gene prediction, functional annotation, phylogenetic analysis, and metagenomics analysis. Through a combination of lectures, tutorials, and practical exercises, students will develop the necessary skills to analyze and interpret microbial genomic data sets. For the final assignment, the student will need to analyze metagenomic data, annotate the representative bacterial genome, and write a manuscript-style report.

Course Objectives:
1. Introduce students to the field of microbial bioinformatics and its applications in microbiology and microbial ecology.
2. Familiarize students with various computational tools and techniques used for microbial genomic data analysis.
3. Provide practical experience in analyzing microbial genomic and metagenomic datasets.
4. Develop critical thinking and problem-solving skills in the context of microbial bioinformatics.
5. Enable students to interpret and present results from microbial genomic analyses.