

MNF - biol 258 - Computational and Comparative Genomics - Syllabus

Important note for Biology/Agrigenomics students: if you have clear overlaps with other modules - we can shift the lecture to 10:00-12:00 in some of the days. Please write Prof. Dagan an email if this is the case (better as a group).

Preliminary introduction: 11.4.2020 11:00 room 0134-

Lecture location: R.0134

Exercise location: ABG7 - E49

The lecture content includes fundamentals of genome research and introduction to methodologies in genomics and transcriptomics

The exercises include hands-on tutorials where the students apply specific types of genomics and transcriptomics analysis.

Presence in the exercises is obligatory

The exam is in the form of multiple choice and includes material from the lectures.

Tutors:

Tal, Devani, Maxime, Montse, Till, Cynthia

Exam 1st: 16.7.2020, 10:00 - 12:00 Uhr, Raum ABG7 - R.E59

Exam 2nd: 15.10.2020, 9:00 - 11:00 Uhr, Raum ABG7 - R.E59

Day		Date			Lecture
1	Monday	18.05.20	08:15-09:00	Lecture1	Introduction to comparative genomics
			09:15-10:00	Lecture2	Linux operating system
			10:15-16:00	Exercise	Linux
2	Tuesday	19.05.20	08:15-09:00	Lecture1	Biological databases
			09:15-10:00	Lecture2	Sequence search
			10:15-16:00	Exercise	NCBI, Blast, Domains, PPI
3	Wednesday	20.05.20	08:15-09:00	Lecture1	Sequencing technologies
			09:15-10:00	Lecture2	Genome assembly
			10:15-16:00	Exercise	Genome assembly (prokaryotes)
	Thursday	21.05.20			Christihimmelfahrt / Vatertag
4	Friday	43973	08:15-09:00	Lecture1	Genome architecture – Genes
			09:15-10:00	Lecture2	Genome architecture – Annotation
			10:15-16:00	Exercise	Genome annotation – Prokaryotes
	Weekend	23-24.05.20			
6	Monday	25.05.20	08:15-09:00	Lecture1	Phylogeny - Introduction
			09:15-10:00	Lecture2	Phylogeny - Methods
			10:15-16:00	Exercise	MSA, Trees
6	Tuesday	26.05.20	08:15-09:00	Lecture1	Microbial metagenomics
			09:15-10:00	Lecture2	Microbial biodiversity
			10:15-16:00	Exercise	Microbial biodiversity (QIIME)
7	Wednesday	27.05.20	08:15-09:00	Lecture1	Eukaryotic genome architecture
			09:15-10:00	Lecture2	Genome annotation – Eukaryotes
			10:15-16:00	Exercise	Genome annotation – Eukaryotes
8	Thursday	28.05.20	08:15-09:00	Lecture1	Genome rearrangements (SNPs, indels, CNV)
			09:15-10:00	Lecture2	GWAS / Genomic variants
			10:15-16:00	Exercise	Structural variants (SNPs, indels)
9	Friday	29.05.20	08:15-09:00	Lecture1	Transcriptomics - Introduction
			09:15-10:00	Lecture2	Transcriptomics - Differential transcriptomics
			10:15-16:00	Exercise	Differential expression