Lecture Series with Tutorials – Frontiers in Biosciences I – Winter Semester 2024/2025

Common lecture for all students of the master program Molecular Biosciences

Lectures **Wednesday, Thursday, Friday – 6.15-7.45 p.m. – Grand Lecture Halls at COS INF 230**

Tutorials **Monday/Tuesday – parallel groups – 8:15-9:45 a.m. – various seminar rooms of COS (INF 230) and BioQuant (INF 267)**

Details: **access via in Moodle** (for registered students only)

Schedule, Topics and Contents:

1st unit: **Genome Expression – Organizer: Professor Brunner**
Topics: Transcriptional control, mRNA processing, mRNA translation, mRNA decay, non coding RNAs
Methods: RNASeq, RNA-protein interaction methods, Polysome gradients, Ribosome profiling, Measuring decay

2nd unit: **Proteome & Interactome – Organizer: Dr. Mogk**
Topics: Protein structure, Protein modification, Protein quality control, Protein complex and signalling, Cell cycle
Methods: Western blots, Mass spectrometry, X-ray & NMR & otherIP, yeast 2-hybrid, MS, X-link

3rd unit: **Metabolome – Organizer: Professor Brügger**
Topics: Enzyme kinetics, control of enzyme activity, flux of metabolites (ions, ...)
Methods: Metabolites analyses, Sensors, MS methods

4th unit: **Cell organisation and dynamics– Organizer: Professor Pereira**
Topics: Protein sorting and intracellular dynamics, cell motility, cytoskeleton
Methods: Immunofluoerescence, GFP live imaging

5th unit: **Genome structure and evolution – Organizer: Professor Kaessmann**
Topics: genome structure, genes and their evolution, genome evolution
Methods: genome editing, QTL, Methods to determine genome structure, DNAsequencing, Karyotyping, chromosome painting, Epigenetic methods

Written Exam:

date:
Monday, 16. Dec. 2024,
1 pm
(retake: date t.b.d./t.b.a.)

location:
INF 252 / Large Auditorium gHS

mode:
MCQ