

Exam Guidelines

LISV I - Autumn semester 2024

December 17th 08:00-10:00

The exam starts at 08:15.
Target completion time: 1h45

Room assignment see Moodle

OBJECTIVE

To prove that you understood the course material, know how to design an experiment, are able to interpret your results and are aware of the value of right control(s).

FORMAT

Written exam.

Format: Multiple Choice Questions (MCQ; one correct answer per question, no negative points)

COURSE MATERIAL

- Overview of LISV I
- Basic theory
- Methods / experimental procedures and equipment
- Lab safety and good lab practice
- Design of experiment
- Data interpretation

SPECIFIC TOPICS (Laboratories 1–5)

- Isolation of total RNA from mouse tissues / Quality control
- cDNA cloning by reverse-transcription + polymerase chain reaction (PCR)
- Analysis of PCR amplicons by agarose gel electrophoresis
- Cloning strategies: design primers based on a provided cDNA sequence. Be aware of reverse-complement for reverse primers / Kozak sequence / in frame cloning / restriction enzyme sites etc.
- Benchling software (primers, virtual cloning, annotations, restriction enzymes)
- NCBI database (retrieve nucleotide sequence and annotations)
- Ligation and transformation, selectable markers, controls
- Plasmid DNA isolation from *E. coli* using alkaline lysis procedure
- Restriction digestion of plasmids
- Experimental controls (positive and negative, where applicable)

IMPORTANT

- Please bring your ID. (EPFL rules: each student must have their student card or otherwise show a valid ID with photo.).
- When you arrive and leave, sign the presence list and indicate time.
- Calculators, computers and laptops are forbidden.
- No scribbling pads or loose papers.
- Cell phones and other electronic equipment must be switched off.