

Final exam format

- open book (you can bring lecture and exercise notes)
- you can use an electronic device (e.g. laptop, ipad or tablet) but without internet access
- a reminder: no AI-based tools should be used during the exam

Final exam content

As mentioned during the lectures, a large fraction of the exam will be inspired from the mini protein design project and the cell engineering exercises. The type of questions / exercises will be similar to the Mock exam that we shared with you a couple weeks ago.

What to study and remember from the lectures

- No need to remember the precise details of circuit or protein design examples described in the lectures
- Learn and understand the principles, concepts and engineering strategies
- Protein design features to remember:
 1. Basic biochemistry of amino-acids
 2. Basic structural properties of protein folds
 3. Type of interactions and their balances underlying protein folding, stability, binding affinity, specificity etc...
 4. Basic thermodynamic description of free energy of folding and binding
 5. Conformational search problem
 6. AI-based approaches for protein design: metrics for ranking designed proteins and their relevance; achievements and limitations of these AI-based approaches;
 7. During the exam, as you have practiced during the mini-project, you will also need to think about the right strategy to achieve your design goals (i.e. biological outcome of your designed proteins)
- Protein circuit features to remember:
 1. Type of protein functions exploited in circuits and how to combine them to build a broad range of circuit capabilities
 2. Achievements and limitations of current circuits (see the different quiz);
 3. You will need to build our own circuits during the exam