

## Sample questions for chapter 1, 2 and the handout

Give examples (and function) of (1) small molecules, (2) medium-sized molecules, (3) big molecules and macro-molecular assemblies.

How does the ATP-ADP system work?

How is the cell built up in % of different components?

What is the functional reason behind double strands of DNA?

What is the length of a Human DNA in terms of number of base pairs and in SI units.

How can one fit a DNA inside a cell?

Each triplet of DNA bases codes for an amino acid. How many amino acids could one possibly have? Compare with reality.

Describe the central process DNA  $\rightarrow$  RNA  $\rightarrow$  proteins. What are the time scales involved?

Give examples of processes that different genes (proteins) are involved in.

What is a genetic network? As a dynamical system, what is required for "reasonable" biology?