Grading of student problem sets

Lecture “Interactions of Proteins and Nucleic Acids: Biophysical Concepts and Theoretical Descriptions (BPC2024)”

Winter Term 2024/2025 | Prof. Dr. Karsten Rippe

Web page: https://malone.bioquant.uni-heidelberg.de/teaching/BPC\_lectures/BPC\_1+2.html

Guidelines and key evaluation principles

### General

* The derivation, explanation, or reasoning in your answer is graded. A simple “Yes” or “No,” or just a number will not earn you any points if it is not clear how you arrived at that answer. Thus, you need to provide the context from which your answer is derived.
* Frequently, various alternative solutions are possible since research questions are addressed where there is no consensus in the field. In these cases, there is no single “correct” answer. Provide sufficient explanation so that one can understand how you arrived at your answer and why it makes sense (a “sanity check”).
* The emphasis is on demonstrating independent thinking and analysis in the answers. Explain your reasoning and methodology, as well as assumptions and approximations. In addition, include "sanity checks" for numerical results to ensure they are reasonable.
* To be avoided:

- Generic, template-like responses without specific examples

- Lack of connection to lecture material

- Missing analysis explanation and lack of insights

- Absence of critical evaluation

* Solving the problem sets should be based on the material covered in the lecture. For each problem set, a reference solution is compiled based on the lecture material and the discussion of the solutions in the lecture. The students’ answers are graded against this reference solution, which is provided along with the grading scheme on the web page.

### AI Tool Usage

* You should cite when AI tools are used for specific parts
* Explain how AI input was incorporated into your analysis
* A simple statement like ChatGPT/Claude/Perplexity was used as a supporting tool is sufficient
* Demonstrate independent understanding through:

- Clear demonstration of independent reasoning

- Critical analysis that goes beyond standard AI responses

- Integration of lecture material with external knowledge

- Novel insights or connections not found in typical AI outputs

- Specific examples and applications showing deep understanding

Collaborative work and references

* Group discussions permitted
* Individual submissions required
* Identical calculations acceptable if methodology explained
* Cite sources using a consistent format
* Include DOI or Pubmed ID where available

Presentation standards

* Clear organization with numbered sections
* Legible equations with defined variables
* Proper units throughout
* Figures/tables numbered with captions
* Clear distinction between given information and derived results

Specific comments on problem set grading

* A scale of 0-12 points per question with a 1/4 point resolution is used according to the rubric given below.
* The total possible score of 12 points is distributed over the a), b), c) and sometimes d) parts of the total of 3 questions per problem set.
* The main differentiation is between excellent, very good, good, fair and insufficient/incomplete work
* Emphasis is given on showing understanding and reasoning over perfect execution and full points can be obtained despite not being perfect
* If a question or a question part is not answered, the answer gets 0 points