

**Unit Name:** Protein homeostasis

**Person in charge:** dr hab. Ewa Laskowska, prof. UG

**Forms of teaching:**

Lecture

**Implementation:**

In-room teaching (can be online if needed)

**Number of hours:**

Lecture: 15 hours

**ECTS credits:** 2

ESTIMATE OF WORKING TIME

Work in contact with the teacher:

Participation in classes: 15 hours

Consultation: 5 hours

The unassisted student work (studying the literature, preparing for tests) -10 hours

TOTAL – 30 hours

**Language of Instruction:** English

**The academic cycle**

2024/2025 summer semester

**Didactic methods:**

- Lecture with multimedia presentation
- Discussion, problem solving tasks

**Forms of credit:**

Examination

**Basic evaluation criteria:**

Students are expected to attend all lectures. The exam will cover information presented during lectures and supplementary materials indicated by the teachers. The grade will be based on the following scale:

below 51% - 2

51-60% -3

61-70% - 3.5

71-80% - 4

81-90% -4,5

91-100% - 5

**Method of verification of the assumed learning outcomes:**

Test, multiple-choice and open-ended questions

**Required courses and introductory requirements**

**A. Formal requirements -**

**B. Prerequisites**

Basic knowledge on protein structure

**Learning Objectives**

The overall goal of this course is to gain recent knowledge on 1) mechanisms responsible for maintaining protein homeostasis in prokaryotes and eukaryotes and 2) molecular processes underlying age- and disease-related disturbances in proteostasis.

**Course content:**

1. Protein structure, folding and degradation; molecular and chemical chaperones;
2. Protein condensates and aggregates, intrinsically disordered proteins, liquid-liquid phase separation of proteins, membrane-less-organelles in bacteria and eukaryotes
3. Proteostasis in ageing and disease, protein aggregation diseases (amyloids, prions, Alzheimer's and Parkinson's diseases), proteostasis dysregulation in cancer.

**Bibliography of literature:**

Recent original articles on topics mentioned in the course content.

Protein folding, an introduction. (C. M. Gomes & P.F.N. Faisca, Springer, 2019)

Protein misfolding and disease: principles and protocols (P. Bross, N. Gregersen, Humana Press, 2003)

Protein misfolding diseases. Methods and protocols (C.M. Gomes, Springer, 2019)