Biophysics

OOSAWA, Kenji

1. Course Description

Biophysics is relatively new subject. In this course, by introduction of beginnings of the subject and recent topics, the student will learn knowledges to overview biology from a different viewpoint.

In this lecture, the student sometimes will do exercises for understanding basic knowledges of biophysical experiments.
In this course, you will acquire knowledge, techniques, and attitudes about DP 1 and DP 2.

2. Course Objectives

The aims of the course are to encourage and enable students to:
(1) understand biological phenomena of organisms from the viewpoint of physics.
(2) get knowledges needed for biophysical experiments.

3. Grading Policy

Basically, grading will be done by exercises (30%) and reports (70%).

4. Textbook and Reference

Textbook
None

5. Requirements(Assignments)

A handout are posted on the LMS in advance.
As preparation, read handouts, check keywords and contents, and summarize them in notes.(about 1 hour)
As reviewing, refer to distribution prints, organize lesson notes, and deepen your understanding.(about 1 hour)

At the 13th lesson, A3 paper that can be brought in during the test will be distributed. Organize and fill out the necessary information on this form and prepare for the examination. You can cooperate with other students and create it.

6. Note

A scientific calculator is required.

7. Schedule

[1]	Prehistory of biophysics 1
[2]	Prehistory of biophysics 2
[3]	Technique for preparation of biological molecules 1: Introduction of gel-filtration
[4]	Technique for preparation of biological molecules 2: Analyses of gel-filtration 1 (Exercise 1)
[5]	Technique for preparation of biological molecules 3: Analyses of gel-filtration 2 (Exercise 2)
[6]	Separation of proteins 1: electrophoresis 1
[7]	Separation of proteins 2: electrophoresis 2 (Exercise)
[8]	Observation of organisms 1: Light microscope
[9]	Observation of organisms 2: Evanescent light microscope
[10]	Bioinformatics 1: DNA sequencing
[11]	Bioinformatics 2: Structure of proteins
[12]	Bioinformatics 3: Prediction of protein structure 1
[13]	Bioinformatics 4: Prediction of protein structure 2
[14]	Biophysics and genetics 1: mutants
[15]	Biophysics and genetics 2: revertants