Biophysics

Syllabus Number 5C126
Basic Major Subjects
Elective Requisites 2 credit

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1. Course Description

I will lecture about the basic structures of pro-signal transduction system and motor system of living organisms from the viewpoint of physics. The students will learn the relationships between a creature and sound wave, light wave, heat, electromagnetism, and force.
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 and be able to consider sensory organs and life systems from the viewpoint of physics.
(2)solve fundamental computational problems in each field.

3. Grading Policy

Final Exam (100%)

4. Textbook and Reference

Textbook
A handout will be provided every time.

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] Biology and physics outline, the basis of information transmission system
[2] Sonic and biology 1: Acoustics
[3] Sonic and biology 2: Articulatory organ
[4] Sonic and biology 3: Utilization of ultrasound, behavior by sound
[5] Ray and biology 1: Optics
[6] Ray and biology 2: Optic organ
[7] Ray and biology 3: Processing and recognition of visual information visual information
[8] Ray and biology 4: Insects and Ultraviolet, Light Utilization of Aquatic Organisms, Luminescence Mechanism of Organism
[9] Heat and biology 1: Thermodynamics, Temperature regulation
[10] Heat and biology 2: Heat sensing mechanism and utilization of Infrared
[11] Physics and magnetism of electromagnetic and bio-electromagnetic, biological and radiation
[12] Force and biology 1 : Law of Gravity, Gravity sensing
[13] Force and biology 2 : Acceleration sensing mechanism of organisms
[14] Various numerical problems and exercises in biophysics
[15] Final Exam and summary