Course Number: 10SPS018
Course title: Fundamentals of Biomolecular Science
Course Coordinator: AKIYAMA Shuji, INO Ryota, KOGA Nobuyasu
Course Category: School of Physical Sciences
Recommended grade: 1, 2, 3, 4
Period: 2nd semester
Credit: 2

Outline
Core aspects of biophysical chemistry will be overviewed with the life-science student in mind. This course aims at cultivating the fundamentals necessary to complete the advanced courses of Structural Biomolecular Science and of Functional Biomolecular Science. The lectures will be given with life-science examples using a textbook covering the lows of thermodynamics, biological standard state, chemical equilibrium and its temperature dependence, chemical kinetics, enzyme kinetics, and molecular dynamics.

Aim
- Understand biological standard state in terms of lows of thermodynamics
- Understand temperature dependence of chemical equilibrium, chemical kinetics, and diffussion
- Understand enzyme kinetics and molecular dynamics

Grading criteria
Sufficient attendance to the lecture and a score of some reports.
Lecture plan

10/15, 10/21, 10/29, 11/5, 11/12, 11/19, 11/26

Contents:
1. Laws of thermodynamics
2. Biological standard state
3. Chemical equilibrium and its temperature dependence
4. Chemical kinetics
5. Diffusion
6. Enzyme kinetics
7. Molecular dynamics

Location
301
Myodaiji Campus, Research Facilities 3F, Room 301.

Language
Japanese or English

Textbooks and references
Physical Chemistry: Principles and Applications in Biological Science

Related URL

Explanatory Note on above URL

Others/Keyword
7363, akiyamas@ims.ac.jp,
5230, iino@ims.ac.jp,
7365, nkoga@ims.ac.jp,