Fundamentals of Biochemistry

Syllabus Number 5C222
Basic Major Subjects
Elective Requisites 2 credit

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1. Course Description

Biochemistry is the science to understand life from the perspective of chemistry. There are a huge number of substances in a living organism and the life is maintained by many interactions of these substances. This course deals with the followings:

(1) The properties and roles of the selected significant substances.
(2) The process of energy production.
(3) The metabolism of a varieties of compounds.

You can acquire knowledge and ability of DP1 and DP2.

2. Course Objectives

The goals of this course are to understand the followings:

(1) The properties of carbohydrates, amino acids, lipids, nucleic acids, mineral, and vitamins.
(2) The mechanism of energy production.
(3) The metabolic pass ways of some important compounds.

3. Grading Policy

Grading will be decided based on term-end examination.

4. Textbook and Reference

Textbook
Hirasawa Eiji, “Hajimeteno Seikagaku” (in japanese) 2nd. Ed.
Kagakudoujin (ISBN978-4-7598-1589-4)

5. Requirements(Assignments)

Nothing special.

6. Note

7. Schedule

[1] Stereochemistry of Biomolecules
[2] Succharides 1: gulcose and thier isomers
[3] Succharides 2: variouse sugars, disaccharide, polysccharides
[4] Amino Acids, Peptides and Proteins
[5] Lipids and Fatty Acids
[6] Nucleic Acids
[7] Vitamins, Coenzymes and Metal ions
[8] Energy Metabolism 1: TCA Cycle
[9] Energy Metabolism 2: Charge Relay System
[10] Energy Metabolism 3: Glycolysis
[11] Energy Metabolism 4: beta-oxidation of fatty acids
[12] Metabolism 1: Neoglycolysis
[13] Metabolism 2: Biosynthesis and degradation of amino acids
[14] Metabolism 3: Urea cycle
[15] Summary and Examination