

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.

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