Course number	U-LAS14 20037 LE68		
Course title (and course title in English)	Introduction to Biochemistry-E2 Introduction to Biochemistry-E2	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Professor,THUMKEO, Dean
Group	Natural Sciences	Field(Classification)	Biology(Issues)
Language of instruction	English	Old group	Group B
Number of credits	2		
Number of weekly time blocks	1	Class style	Lecture (Face-to-face course)
Year/semesters	2026・Second semester		
Days and periods	Tue.2/Tue.3	Target year	Mainly 1st & 2nd year students
Eligible students	For science students		

[Overview and purpose of the course]

In this introductory lecture, we will learn about the molecular chemical basis of life. Emphasis of this course includes fundamentals of the components that form the backbone of the cell (proteins, nucleic acids, sugars, and lipids), as well as enzyme chemistry and the role of typical proteins. Finally, we will discuss on the link between biochemistry and human diseases, such as enzyme gene deficiencies, and how to treat them.

[Course objectives]

As all matter is composed of molecules, modern life science aims to explain all aspects of life comprehensively from the molecular level to that of the entire organism. In this lecture, students will attain a basic understanding of the molecular design of life, that is how biomolecules work and cooperate with each other to fulfill virtually all actions exerted by living beings.

[Course schedule and contents)]

1.Introduction to biochemistry
2. Amino acids (1): Structure
3. Amino acids (2): Function
4. Peptide and protein structure
5. Enzymes (1): Kinetic theory
6. Enzymes (2): Inhibitors
7. Enzymes (3): Enzyme activity
8. Cell structure and function
9. Nucleic acids and nucleotide (1) : Structure and function
10. Nucleic acids and nucleotide (2) : Central dogma
11. Monosaccharides and polysaccharides
12. Lipids and phospholipids
13. Methods in biochemistry
14. Introduction to metabolism
≪Final exam≫
15. Feedback

Continue to Introduction to Biochemistry-E2(2)↓↓↓

Introduction to Biochemistry-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on class attendance and participation (~30 %), a report (~ 10%) and a final examination (~60 %).

[Textbooks]

Not used
Full handouts will be provided.

[References, etc.]

（References, etc.）
Nelson & Cox 『Lehninger Principles of Biochemistry 8th edition, International』 （Macmillain, 2021）
ISBN:978-1-319-38149-3（Electronic version are available at the University Library eBook）

[Study outside of class (preparation and review)]

I recommend students to confirm the handouts for each lecture and the relevant reference textbooks to learn about the lecture content in advance of the class. Handouts for each lecture will be uploaded on LMS approximately one week before each class.

[Other information (office hours, etc.)]

Students are welcome to ask any questions in the class. Consultation via email or online meetings such as Zoom is possible. For those students who prefer to discuss directly with me beyond class hours, please arrange appointments by email in advance.

[Essential courses]

Faculty of Science