科目ナンバリング	U-LAS14 20037 LE68						
授業科目名<英訳>	Introduction to Biochemistry-E2 Introduction to Biochemistry-E2			担当者所属職名・氏名	医学研究科　教授　THUMKEO, Dean		
群	自然科学科目群		分野(分類)	生物学(各論)		使用言語	英語
旧群	B群	単位数	2単位	週コマ数	1コマ	授業形態	講義（対面授業科目）
開講年度・開講期	2026・後期	曜時限	火2/火3	配当学年	主として1・2回生	対象学生	理系向

[授業の概要・目的]

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.

[到達目標]

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.

[授業計画と内容]

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

[履修要件]

特になし

[成績評価の方法・観点]

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

Introduction to Biochemistry-E2(2)へ続く↓↓↓

Introduction to Biochemistry-E2(2)

[教科書]

使用しない
Full handouts will be provided.

[参考書等]

（参考書）
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）

[授業外学修（予習・復習）等]

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.

[その他（オフィスアワー等）]

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.

[主要授業科目（学部・学科名）]

理学部