

Division of Life Science
The Hong Kong University of Science & Technology
LIFS2210
Biochemistry I
(2022/23 Fall Semester)

Date/Time: 4:30 pm – 5:50 pm **Monday**; 12:00 pm – 1:20 pm **Friday**

Venue: Lecture Theater J

Instructors: Prof. Chun Liang (Coordinator; Tel: 2358 7296, E-mail: bccliang@ust.hk)
Prof. Shangyu Dang (Tel: 2358 5944, E-mail: sdang@ust.hk)

Course description:

Credit Points: 3

Prerequisite(s): LIFS 1901 or LIFS 1902

Exclusion: Nil

Biochemistry I is a core course designed for undergraduate students majored in life science programs. Biochemistry is the study of the chemical properties and biological functions of the small molecules, macromolecules, and macromolecular complexes that constitute life. Key topics include the structures, functions, biosynthesis and regulation of biomolecules including carbohydrates, lipids, nucleic acids, amino acids and proteins. Students will also learn DNA replication, transcription and translation. Students are advised to read the textbook and lecture PPT and view the lecture videos (if provided) before class to familiarize with the large amount of materials that will be covered in the lectures.

Course objectives:

On completion of this course, students will be able to:

1. Explain the basic concepts of biochemistry.
2. Recall and design experiments demonstrating the principles of biochemistry.
3. Evaluate the influence of biochemical principles on social and daily life.
4. Appraise the relevance of the biological sciences in preparing for advanced study in biochemistry and related subjects.

Exams and Grading: Mid-term examination (50%), and Final Examination (50%); quizzes may also be given, and the scores will be combined with the mid-term and/or final exams.

Grading: A⁺ to F

Course schedule:

Date	Lecture	Instructor
Friday, 02/09	Introduction of Biochemistry	C. Liang
Monday, 05/09	Lipids	C. Liang
Friday, 09/09	Biomembranes	C. Liang
Friday, 16/09	Carbohydrates I	C. Liang
Monday, 19/09	Carbohydrates II	C. Liang
Friday, 23/09	Nucleic Acids	C. Liang
Monday, 26/09	Chromatin Organization	C. Liang
Friday, 30/09	DNA Replication	C. Liang
Monday, 03/10	DNA Repair and Recombination	C. Liang
Friday, 07/10	Transcription and RNA Processing	C. Liang
Monday, 10/10	Protein Synthesis	C. Liang
Friday, 14/10	Genetic Engineering	C. Liang
Monday, 17/10	Course Review / Tutorial	C. Liang
Thursday, 20/10 (7-9 pm)	Mid-term Examination (date and time to be confirmed)	
Friday, 21/10	Amino Acids	SY Dang
Monday, 24/10	Protein Structure I	SY Dang
Friday, 28/10	Protein Structure II	SY Dang
Monday, 31/10	Protein Function and Evolution	SY Dang
Friday, 04/11	Protein Technology	SY Dang
Monday, 07/11	Enzymes & Enzymatic Reactions	SY Dang
Friday, 11/11	Enzyme Kinetics I	SY Dang
Monday, 14/11	Enzyme Kinetics II	SY Dang
Friday, 18/11	Enzyme Regulation	SY Dang
Monday, 21/11	Enzyme Cofactors & Coenzymes	SY Dang
Friday, 25/11	Course Review / Tutorial	SY Dang
Monday, 28/11	Course Review / Tutorial	SY Dang
TBA	Final Examination	

Textbook: Biochemistry (4th edition)
By C.K. Mathews, K.E. van Holde, D.R. Appling, and S.R. Anthony-Cahill
The Benjamin/Cummings Publishing Company

Reference books: Biochemistry (7th edition)
By Jeremy M. Berg, John L. Tymoczko, and Lubert Stryer

Lehninger Principles of Biochemistry (6th edition)
By David L. Nelson and Michael M. Cox

Course website: CELT (<https://canvas.ust.hk>) for lecture slides and course materials.