MODULE HANDBOOK

Module Name	Structure and Function of Biomolecules
Module level	Bachelor
Abbreviation, if applicable	8420402037
Sub-heading, if applicable	-
Course included in the module, if applicable	-
Semester/term	5th/Third Year
Module coordinator(s)	Prof. Dr. Leny Yuanita, M.Kes.
Lecturer(s)	Prof. Dr. Leny Yuanita, M.Kes.; Prof. Dr. Hj. Rudiana Agustini, M.Pd.; Dr. Nuniek Herdyastuti, M.Si.; Dr. Prima Retno Wikandari, M.Si.; Mirwa Adiprahara Anggarani, S.Si., M.Si.
Language	Indonesian
Classification within the curriculum	Compulsory Course
Teaching format/class hours per week during the semester:	2 hours lecturers (50 min per hours)
Workload:	1 CU for bachelor degree equals to 3 workhours per week or 170 minutes (50' face to face learning, 60' structured learning, and 60' independent learning). In one semester, courses are conducted in 14 weeks (excluding mid and end-term exam). Thus, 1 CU equals to 39.67 workhours per semester. One CU equals to 1.59 ECTS.
Credit points:	2 SCU = 2 x 1.59 = 3.18 ECTS
Prerequisites course(s):	Organic Chemistry II
Targeted learning outcomes:	CLO 1. Students have knowledge of the structure of macro molecules: carbohydrates, proteins, fats, nucleic acids; the function or role of macromolecules and vitamins, minerals, hormones in organism. CLO 2. Students mastering the concept of structure and function of macromolecules carbohydrate, protein, fat, nucleic acid; as well as vitamins and minerals in organism. CLO 3. Students have the ability to utilize learning resources and ICT to support mastery of concepts and theories of Biochemistry. CLO 4. Students have the ability to solve science and technology problems in biochemistry and in a simple scope through the application of knowledge of the structure and function of macromolecules, and relevant technology.

	CLO 5. Students have responsibility and independent in their attitude in their expertise field
Content:	**The molecules of organisms and their composition:** Characteristics of living matter, Biochemistry in living matter, Cells as the smallest unit of life, Basic structure of cells and their functions, Organization of molecules in cells, Energy for living systems **Structure and function of carbohydrates:** Classification of carbohydrates, structure of carbohydrates, function of carbohydrates in biological systems, **Structure and function of proteins**: The structure and properties of amino acids, Peptide bonds and functions, Separation and purification of amino acids, Homologs protein, Structure of protein, Fibrous and globular proteins, Protein genetic disorders **Structure and function of enzymes**: Structure, properties and functions of enzymes. Enzyme nomenclature, Enzymatic reaction kinetics, Factors affecting enzyme activity, Enzyme inhibition, Multi-enzyme systems. **Structure and function of vitamins and minerals:** Types of vitamins, Structure and role in enzyme function, Inorganic elements needed in nutrition and their role in enzyme function. **Structure and function of nucleic acids:** Components of nucleosides, Nucleosides, Nucleic acids, Structure of nucleic acids, Free nucleotides, Properties of DNA, RNA, Role of nucleic acids in protein synthesis **Structure and function of lipids and bio- membranes**: Structure and function of lipids; the main component of Membrane.
Study / exam achievements:	Students are considered to be competent and pass if at least get 55 Final score is calculated as follows: 20% participation + 30% assignment + 20% middle exam (UTS) & 30% final exam (UAS) Table index of graduation A = 4 (85 ≤-≥ 100) A- = 3,75 (80 ≤-< 85) B+ = 3,5 (75 ≤- < 80) B = 3 (70 ≤-< 75) B- = 2,75 (65 ≤-<75) C+ = 2,5 (60 ≤-<65) C = 2 (55 ≤-<60) D = 1 (40 ≤-<55) E = 0 (0 ≤-<40)

Media:	Computer, LCD, White board
Learning Methods	Individuals assignment, group assignment, discussion and presentation.
Literature:	Koolman, J and Roehm K.H, 2005, *Color Atlas of Biochemistry 2nd edition*. Stutgard New York Lehninger, 1988, *Dasar-dasar Biokimia*, jilid 1, Terjemahan Maggi Thenawidjaya, Penerbit Erlangga, Jakarta Mathews,C.K and Van Holde K.E, 2000, *Biochemistry*, second ed., The Benjamin Cumming company, Inc. Nelson D.L., and Cox M.M., 2003, *Lehninger Principle of Biochemistry*, 4th edition, University of Winconsin-Madison Stryer, L., 1988, *Biochemistry*, third ed., New York : W.H. Freeman and company