THE MODULE HANDBOOK
FACULTY OF BIOLOGY

Biochemistry

Module code	BIO 30101
Module level	2nd year of Undergraduate Program in Biology
Abbreviation, if applicable	-
Sub-heading, if applicable	-
Courses included in the module, if applicable	-
Semester/term	Odd
Module coordinator(s)	Dr. Rarastoeti Pratiwi, M.Sc.
Lecture(s)	1. Dr. Yekti Asih Purwestri, M.Si. 2. Dr. Tri Rini Nuringtyas, M.Sc. 3. Woro Anindito Sri Tunjung, S.Si., M.Sc., Ph.D.
Language	Indonesia
Classification within the Curriculum	Compulsory
Teaching format/class hours per week during the semester	This course is organised into 2 parallel classes and planned to have 14 teaching weeks and 2 weeks of examination.
Workload	Estimated working hour: 3 credit of theory and 1 credit of laboratory work.
Credit points	3-1credits
Requirements	Physics (MFS 1107), Organic Chemistry (MKS 2401) and General Biology (BIO 10001)
Learning goals/ competencies	**1. Knowledge and understanding** a. Basic principles in mathematics, physics and chemistry related to the structure and process in living system. b. Theoretical and principles of structure, functions of biomolecules and its role in living process. c. Concepts and theory of chemical reactions in living organisms. d. The role of biochemistry in the understanding of living systems and sciences. **2. Ability/intellectual skill** a. To do and report a research in biochemistry fields. b. To formulate and prove hypothesis in biochemistry field

	c. To integrate and evaluate the information and data in biochemical process of living organisms from many sources **3. Practical skill** a. To analyses the results of experiments in biochemistry fields and adjust the validity. b. To use Scientifics references and to make lecture note effectively. c. To make and produce technical services in scientific manner. **4. Managerial and transferable skill** a. Good and effectively communications either in writing, oral or drawing. b. To apply the principles of mathematics and chemistry in biology. c. To work together in the group. d. To apply and integrate the biochemistry in biology and its branches. e. To manage the time and resources effectively and efficiently. **5. Attitude** a. Curiosity. b. Respect to the originality ideas, concepts and other findings. c. Attention and respect to other opinions and comments.
Content	This course consist of 3 credits units of teaching and learning course and 1 credit unit of practical course. The teaching and learning course contain of 14 mean topics i.e.: principal of biochemistry as the basic understanding of molecular phenomena of life such as hierarchy of living materials, structures and functions of living molecules: carbohydrates, proteins, lipids, nucleic acids, vitamins and minerals; enzyme as biocatalisator; bioenergetics and bio oxidation; principals of metabolism and genetics materials and the role of gene expressions for living organisms. After following this course, students should be able to explain the principles of biochemistry in the living systems and using this knowledge to understand the related biochemistry courses such as analytical biochemistry, advanced biochemistry, enzymology, and biochemical nutrition and other courses such as microbiology, physiology and molecular biology of the cells etc.
Study/ exam achievements	**1. Theory** a. Midterm: 30 % b. Final examination: 40 % c. Quiz and home works: 30 %

	2. Laboratory work a. Preliminary test: 10 % b. Laboratory activity & report, and onine postest (eLisa): 60 % c. Final test: 30 %
Forms of media	White board, LCD, e-learning, video and animation.
Literature	1. Horton HR, Moran LA, Rawn JD dan Scrimgeor KG (1996) Principles of Biochemistry. Second Edition. Prentice-Hall International, INC. 2. Lehninger AL, Nelson DL, Cox MM (1993) Principles of Biochemistry. Second Edition Worth Publisher. 3. Nelson, DL and Cox MM (2000) Lehninger: Principles of Biochemistry. Third Edition. Worth Publisher. (e-book) 4. Stryer L (1995) Biochemistry. Fourth Edition. W.H. Freeman and Company. 5. Boyer, R (1999) Concept in Biochemistry. Brooks Cole Publishing Company **Other References** 1. Understand Biochemistry Lehninger Principles biochemistry 3/6 Version. (1999) The Mona Group, LLC. 2. Textbook Principles of Biochemistry 1993 and 2000.