



THE MODULE HANDBOOK

FACULTY OF BIOLOGY

Biochemistry

Module code	BIB 10101IUP
Module level	2 nd year of Undergraduate Program in Biology
Abbreviation, if applicable	-
Sub-heading, if applicable	-
Courses included in the module, if applicable	-
Semester/term	even
Module coordinator(s)	Dr. Rarastoeti Pratiwi, M.Sc.
Lecture(s)	<ol style="list-style-type: none">1. Dr. Rarastoeti Pratiwi, M.Sc.2. Dr. Tri Rini Nuringtyas, M.Sc.3. Dr. Yekti Asih Purwestri, M.Sc.4. Dr. Woro Anindito Sri Tunjung, M.Sc.
Language	English
Classification within the Curriculum	<ol style="list-style-type: none">1. Elective course2. Advanced Biochemistry course is the optional course according to the curriculum 2013 of Study Program of Biology. This course consist of 2 credits units of teaching and learning course. The teaching and learning course contain of 14 mean topics i.e: introduction and overview of biochemistry and the development of biochemistry up to date, the relation between protein structure and function, conjugate protein (such as: glycoprotein, lipoprotein and nucleoprotein); membran system; enzyme; metabolism pathway and regulation; bioenergetics and ATP syntesis; comparative study of C and N metabolism in microorganism, plant and animal (mammals), nucleic acids metabolism and protein post translation and its regulation.
Teaching format/class hours per week during the semester	Advanced Course is given on the fourth semester to S1 regular students in Faculty of Biology, 1 meeting per week with time allocation of 100 minutes. Learning method delivery such as Student Centered Learning combined with Collaborative Learning, Cooperative Learning, Case Based Learning and Problem Learning.
Workload	Estimated working hour: 7 hours/week.
Credit points	3-1 credits



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Requirements	General Biology (BIB 10003IUP), Physics (MSF 1107IUP), Chemistry(MKS 1105IUP)
Learning goals/ competencies	<p>1. Knowledge and understanding</p> <ol style="list-style-type: none">Basic principles in mathematics, physics and chemistry related to the structure and process in living system.Theoretical and principles of structure, functions of biomolecules and its role in living process.Concepts and theory of chemical reactions in living organisms.The role of biochemistry in the understanding of living systems and sciences.The involvement of biologist in the social community and scientific community. <p>2. Ability/intellectual skill</p> <ol style="list-style-type: none">To do and report a research in biochemistry fields.To formulate and prove hypothesis in biochemistry field.To integrate and evaluate the information and data in biochemical process of living.Organisms from many sources. <p>3. Practical skill</p> <ol style="list-style-type: none">To use Scientifics references and to make lecture note effectively.To make and produce technical services in scientific manner. <p>4. Managerial and transferable skill</p> <ol style="list-style-type: none">Good and effectively communications either in writing, oral or drawing.To apply the principles of mathematics and chemistry in biology.To work together in the group.To apply and integrate the biochemistry in biology and its branches. <p>5. Attitude</p> <ol style="list-style-type: none">To develop curiosity.Respect to the originality ideas, concepts and other Findings.Attention and respect to other opinions and comments.Pay attention to and be able to appreciate the views and opinions of others.
Content	Introduction and overview of biochemistry and the development of biochemistry up to date, the relation between protein structure and function, conjugate protein (such as: glycoprotein, lipoprotein and nucleoprotein); membran system; enzyme; metabolism pathway and



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	regulation; bioenergetics and ATP synthesis; comparative study of C and N metabolism in mikroorganism, plant and animal (mammals), nucleic acids metabolism and protein post translation and its regulation.
Study/exam achievements	<ol style="list-style-type: none">1. Midterm: 30%2. Final examination: 30%3. Quiz and home works: 10%4. Presentation: 20%
Forms of media	White board, LCD
Literature	<ol style="list-style-type: none">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. <p>Other References</p> <ol style="list-style-type: none">1. Understand BiochemistryLehninger Principles biochemistry 3/6 Version. (1999) The Mona Group, LLC2. Textbook Principles of Biochemistry 1993 and 2000.