



UNIVERSITAS NEGERI JAKARTA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
CHEMISTRY STUDY PROGRAM

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Bachelor in Chemistry

MODULE HANDBOOK

Module name:	Biomolecular Metabolism
Module level, if applicable:	Undergraduate
Code:	33151093
Sub-heading, if applicable:	-
Classes, if applicable:	-
Semester:	4 th
Module coordinator:	Dr. Fera Kurniadewi, M.Si.
Lecturer(s):	1. Prof. Dr. Muktiningsih Nurjayadi, M.Si. 2. Irma Ratna Kartika, M.Sc. Tech. 3. Dr. Irwan Saputra, M.Si.
Language:	Bahasa Indonesia
Classification within the curriculum:	Compulsory course in the second year (4 th semester) Bachelor Degree
Class Size	40
Type of Teaching	In class activity : Team Based Project and Project based Learning Structured activity : Group Discussion using WorkSheet Independent activity : Individual task
Teaching format / class hours per week	Learning activity can be carried out in the form of : 1. Lecture or students response a. Face to face : 50 minutes/SKS b. Structured activity : 60 minutes/SKS c. Independent activity : 60 minutes/SKS
Workload:	1 CU (SKS) for bachelor degree equal to 4 work hours per week or 170 minutes. 3x50 minutes face to face, 3x60 minutes structured tasks, 3x60 minutes independent learning, for 16 weeks (including midterm and final examination), a total of 135,99 hours/semester.
Credit points:	3 SKS (4.5 ECTS)
Prerequisite course(s):	Structure and function of biomolecules

Course Outcomes :	<p>After taking this course the students have ability to:</p> <ol style="list-style-type: none"> 1. CLO-1. Analyzing the interrelation of biomolecular metabolism in living things 2. CLO-2. Analyze the citric acid cycle/krebs cycle 3. CLO-3. Analyze oxidative phosphorylation 4. CLO-4. Analyzing oxidative phosphorylation formulated the linkage of the krebs cycle with oxidative phosphorylation and ATP synthesis 5. CLO-5. Formulate the relationship of catabolism and anabolism of carbohydrates and their accompanying energy 6. CLO-6. Analyze the mechanism and control of photosynthesis 7. CLO-7. Analyze the process of lipolysis, beta-oxidation and fatty acid synthesis 8. CLO-8. Analyze protein metabolism and cellular function 9. CLO-9. Analyzing nucleotide catabolism and anabolism 															
Content :	<ol style="list-style-type: none"> 1. Metabolic interrelation 2. Citric acid cycle and interrelation with biomolecular metabolism 3. Oxidative phosphorylation 4. Krebs cycle interrelation and oxidative phosphorylation in formation of ATP 5. Carbohydrate metabolism 6. Photosynthesis 7. Lipid metabolism 8. Protein metabolism 9. Nucleotide metabolism 															
Study/exam achievements:	<p>Examinations are conducted as Unit Tests. There are two-unit tests, each covers 4-5 chapters. The final marks are derived from unit tests (70%) and structured tasks (30%).</p> <table border="1" data-bbox="584 1255 1421 1549"> <thead> <tr> <th>No</th> <th>CO</th> <th>Assessment Object</th> <th>Assessment Techniques</th> <th>Assessment Techniques</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>CLO 1-9</td> <td>a. Presence b. Presentation c. Mid test d. Final test</td> <td>Written test</td> <td>5% 25% 35% 35%</td> </tr> <tr> <td colspan="4" style="text-align: right;">Total</td> <td>100%</td> </tr> </tbody> </table>	No	CO	Assessment Object	Assessment Techniques	Assessment Techniques	1	CLO 1-9	a. Presence b. Presentation c. Mid test d. Final test	Written test	5% 25% 35% 35%	Total				100%
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Total				100%												
Media	<p>Power point presentation, Zoom Meeting, Microsoft Teams, Laptop, LCD Proyektor</p>															
Literatures	<ol style="list-style-type: none"> 1. Berg, J. M., Tymoczko, J. L. And Stryer, L., 2002. <i>Biochemistry</i> 5th Editions. W. H. Freeman, USA. 2. Murray, R. K., Bender, D. A., Botham, K. M., Kennelly, P. J., Rodwell, P. W. And Weil, P. A. 2009. <i>Harper's Illustrated Biochemistry</i> 28th Edition. McGraw-Hill, Lange, USA. 															

	PL O1	PL O2	PL O3	PL O4	PL O5	PL O6	PL O7	PL O8	PL O9	PLO 10	PLO1 1	PLO12
CO1						v						
CO2						v						
CO3						v						
CO4						v						
CO5						v						
CO6						v						
CO7						v						
CO8						v						
CO9						v						