



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:	Ganjil	
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	
Type of Teaching	Contact hours per week during the semester	Class Size
Lecture (Expository, discussion, exercise)	150 minutes	40
Workload:	Total workload is 510 minutes (4.5 ECTS) per semester which consists of 150 minutes (1.3 ECTS) learning activity, 180 minutes (1.6 ECTS) structured task and 180 minutes (1.6 ECTS) individual learning per week for 16 weeks.	
Credit points:	4.5 ECTS	
Prerequisite course(s):	Structure and function of biomolecules	
Course Outcomes :	After taking this course the students have ability to: 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	

	<ol style="list-style-type: none"> 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"> <thead> <tr> <th>No</th> <th>CO</th> <th>Assesment Object</th> <th>Assessment Techniques</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td> <ol style="list-style-type: none"> a. Presence b. Presentation c. UTS d. UAS </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	Assesment Object	Assessment Techniques	Weight	1		<ol style="list-style-type: none"> a. Presence b. Presentation c. UTS d. UAS 	Written test	5% 25% 35% 35%	Total				100%
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1		<ol style="list-style-type: none"> a. Presence b. Presentation c. UTS d. UAS 	Written test	5% 25% 35% 35%												
Total				100%												
Media	Power point presentation, Zoom Meeting, Microsoft Teams, Laptop, LCD Proyektor															

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. Lehninger, A. L., 1993. <i>Dasar-dasar Biokimia</i>, Alih bahasa: Thenawidjaya, M., Jilid 1. Erlangga, Jakarta. 3. Lehninger, A. L., 1994. <i>Dasar-dasar Biokimia</i>, Alih bahasa: Thenawidjaya, M., Jilid 2. Erlangga, Jakarta. 4. Lehninger, A. L., 1994. <i>Dasar-dasar Biokimia</i>, Alih bahasa: Thenawidjaya, M., Jilid 3. Erlangga, Jakarta. 5. Mathews, C. K., Van Holde, K. E. And Ahern, K. G. 1999. <i>Biochemistry</i>. Benjamin-Cummings, USA. 6. 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. 7. Wirahadikusumah, M. 1981. <i>Protein, Enzim dan Asam Nukleat</i>. ITB, Bandung. 8. Wirahadikusumah, M. 1985. <i>Biokimia: Metabolisme Energi, Karbohidrat dan Lipid</i>. ITB, Bandung.
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PLO and CO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12
CO1			v			v						
CO2			v			v						
CO3			v			v						
CO4			v			v						
CO5			v			v						
CO6			v			v						
CO7			v			v						
CO8			v			v						
CO9			v			v						