

## General Biochemistry

Module name		General Biochemistry				
Module level		2 <sup>nd</sup> year of Bachelor program				
Abbreviation, if applicable						
Sub-heading, if applicable						
Courses included in the module, if applicable		KI-3061 Biochemistry				
Semester/term		4 <sup>th</sup> Semester				
Module coordinator(s)						
Lecturer(s)		Dr. Made Puspasari Widhiastuty				
Language		Indonesian				
Classification within the Curriculum		Compulsory courses for Bachelor Program in Biology Provided by Chemistry Study Program				
Teaching format/ class hours per week during the semester		<i>Lecture (Face to face lecture): 70%</i> <ul style="list-style-type: none"> <li>Lecture : 2 hours x 14 weeks</li> </ul> <i>Practical: 30%</i> <ul style="list-style-type: none"> <li>Practical class : 3 hours x 14 weeks</li> </ul>				
Workload	Total Workload	166 hours; 3(1) CU				
		Face to face teaching	Structured Activities	Independent study + Assignment	Exam	
	Lecture	28	32	28	4	92
	Practical class	42	12	16	4	74
	Total				166	
Credit points		<i>Biochemistry 3(1) CU</i>				
Requirements		<i>Basic Chemistry, Organic Chemistry</i>				
Content	<p>This course activities consist of lectures and practice with scope:</p> <ul style="list-style-type: none"> <li>The structure of biomacromolecules and their monomers.</li> <li>Chemical properties of biomacromolecules, and their related functions, such as protein as an enzymes, kinetics of chemical reactions catalyzed by enzymes.</li> <li>Biomolecules transport processes inside the cell, as well as bionergetics aspect.</li> <li>Overview of metabolism, the relationship between carbohydrates, lipids, proteins and nucleic acids metabolism, with focused on carbohydrate metabolism, including glycolysis, alcohol fermentation, lactic acid fermentation, carboxylic acid cycle, and oxidative phosphorylation / electron transport, the synthesis of carbohydrates, namely gluconeogenesis and also the photosynthetic reaction, and the regulation of carbohydrate catabolism and anabolism.</li> <li>Discussion of nucleic acid biomolecules function focused on the flow of genetic information.</li> </ul>					
Learning goals/ competencies	<p><i>After completion of this module students are expected to be able to:</i></p> <p>Knowledge:</p> <ul style="list-style-type: none"> <li>Explain the basic principles of the structure of biomolecules</li> <li>Describe the chemical reactions in living cells</li> </ul> <p>Skill:</p> <p>Perform laboratory skills in the scope of biochemistry</p> <p>Competence:</p> <p>Apply and relate the concepts in biochemistry to a more practical understanding of biology</p>					
Study/exam achievement	<i>Lecture (70%); Practical class (30%)</i>					
		<i>Midterm exam</i>	<i>Final exam</i>	<i>Assignment / Quizzes</i>	<i>Practical class</i>	<i>Total</i>
	<i>Lecture</i>	30%	30%	10%	30%	100%
Forms of media	<i>Classical teaching tools:</i>		<i>white board/ chalk and talk, animation, power point, practical class</i>			
	<i>Integrated teaching tools:</i>		-			
	<i>Digital teaching tools:</i>		-			
	<i>Problem based teaching tools:</i>		-			
Literature	<ol style="list-style-type: none"> <li>Berg, JM, Tymoczko, JL, Stryer, L. 2012. Biochemistry, 7th ed. WH Freeman and Co. New York.</li> <li>Nelson, DL, Cox, MM, Lehninger. 2012. Principles of Biochemistry, 6th ed. WH Freeman and Co. New York.</li> </ol>					

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|  | <ol style="list-style-type: none"><li data-bbox="332 191 1356 218">3. Devlin, TM. 2010. <i>Textbook of Biochemistry with clinical correlations</i>, 7th ed. Wiley&amp;Sons. New York.</li><li data-bbox="332 218 1226 245">4. Voet, DJ, Voet, JG, Pratt, CW. 2013. <i>Principles of Biochemistry</i>. John Wiley &amp; Sons. New York.</li></ol> |
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