

Modul designation	Biomedic 1 (Molecular Biology, Genetic and Cell)
Semester in which the module is taught	1st Semester of Academic/Bachelor Stage
Person responsible for the module	<ol style="list-style-type: none"> <li>1. Dr. Lelly Yuniarti, S.Si., M.Kes.</li> <li>2. Julia Hartati, dr., M.Kes.</li> <li>3. Uci Ari Lantika, dr., M.Kes</li> <li>4. Tryando Bhatara, dr., MKes.</li> <li>5. Eva Rianti Indriasari, dr., Mkes</li> </ol>
Language	Bilingual (Indonesia & English)
Relation to curriculum	Compulsory
Teaching methods	<ul style="list-style-type: none"> <li>- Lecture</li> <li>- Tutorial</li> <li>- Laboratory activity</li> </ul>
Workload	<p>Total workload : 5 weeks</p> <p>Contact hours : Lecture 2 hours/week  Tutorial 3 hours/meeting (3 meeting/week)  Laboratory activity 3 hours/meeting</p>
Credit points	6 ECTS (5 SKS)
Required & recommended prerequisites for joining the module	-
Module Objective	<p>At the end of course, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Explain the definition, structure, and general function of cells and cell types based on organisation and function (prokaryotic and eukaryotic cells). (C-2)</li> <li>2. Explain the structure of erythrocytes. (C-2)</li> <li>3. Explain the structure and function of various cell organelles (C-3)</li> <li>4. Explain the structure and function of the cell membrane (C-3)</li> <li>5. Explain the cytoskeleton (C-2)</li> <li>6. Describe the interrelation of organelles in performing a cell function (C-4)</li> <li>7. Explain cell adhesion and cell links as a form of cell interrelation in tissues (C-2)</li> <li>8. Explain the definition and function of signal transduction (C-2)</li> <li>9. Compare various types of cell division. (C-4)</li> <li>10. Explain the definition, types, functions of gametogenesis, and stages of fertilisation)</li> <li>11. Explain the definition, classification, and hierarchy of biomolecules. (C2)</li> <li>12. Describe the structure of the micromolecules. (C4)</li> <li>13. Analyzing the biological functions of carbohydrates, fats, proteins, and fatty acids (C4 A3)</li> <li>14. Describe the definition, classification, and metabolic processes. (C4)</li> </ol>

	<ol style="list-style-type: none"> <li>15. Implement purine and pyrimidine metabolism in gout cases. (C3, A3)</li> <li>16. Linking carbohydrate, fat, and protein metabolism in undernourished patients. (C2, A3)</li> <li>17. Explain the principles and processes of the cellular respiration chain. (C2)</li> <li>18. Explain the process of biological oxidation. (C2)</li> <li>19. Explain the formation of exogenous and endogenous oxidants and antioxidants. (C2)</li> <li>20. Explain the laws of thermodynamics and their biological applications. (C2)</li> <li>21. Explain the definition, classification, mechanism of action, and kinetics of enzymes (C2)</li> <li>22. Linking clinical applications of enzymes. (C4)</li> <li>23. Explain the principles of genetic information, DNA packaging, central dogma, epigenetics, and DNA repair. (C2)</li> <li>24. Summarizes the processes of DNA replication and transcription, translation, and translation (C2)</li> <li>25. Linking types of mutations and diseases as well as the principles of genetic examination with disorders due to DNA mutations. (C4, A3, P1)</li> <li>26. Explain the definition, classification, and function of nutrition. (C2)</li> <li>27. Explain the definition and classification of deficiencies and excesses of macronutrients and micronutrients. (C2)</li> <li>28. Linking pathogenesis and pathophysiology with clinical manifestations of nutritional disorders. (C4)</li> <li>29. Explains the principles of hereditary traits, the relationship between chromosomes and genes, chromosome abrasion, and chromosome analysis. (C2)</li> <li>30. Implementing Mendel's laws in the ABO system of blood grouping, skin colour and hair. (C3)</li> <li>31. Relates the inheritance of autosomal and X-link genes to pedigree, population genetics, and laboratory principles of chromosome examination. (C4)</li> <li>32. Explain the relationship between the case and the bioethics and humanities programme (BHP) and Islamic insert medical curriculum (IIMC)</li> </ol>
Content	The study material/material presented in Biomedical 1 includes mastery of the theoretical concepts of cells, molecular biology and genetics.
Examination forms	Multidisciplinary Examination (MDE), SOOCA, Lab exam
Study and examination requirements	System Pass Criteria : Minimum MDE, SOOCA and Lab exam score 55.5 (C)
Reading list	<ol style="list-style-type: none"> <li>1. Alberts B, Johnson A, Lewis J, Morgan D, Raff, M, et al. Molecular Biology of the Cell. 6th ed. New York: Garland Science</li> <li>2. Karp G. Cellular and Molecular Biology Concepts and Experiment. 7th ed. USA: John Willey and Sons, Inc.</li> </ol>

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|  | <ol style="list-style-type: none"><li>3. Dudek RW. Embryology. 5th Edition. Philadelphia: Lippincot William and Wilkins.</li><li>4. Illustrated Biochemistry, 31st ed, Harpers</li><li>5. Biochemistry, Lippincott</li><li>6. Principles of Biochemistry, Lehninger</li><li>7. Textbook Of Biochemistry With Clinical Correlations , Devlin</li><li>8. Kumar V, Cotran R, Robbins S. Buku Ajar Patologi. 7th ed. Jakarta: EGC. p. 864-8</li><li>9. Underwood JCE. General and Systemic Pathology. 4th ed. USA: Elsevier. P. 729-30.</li><li>10. Whitney, Ellie, and Sharon Rady Rolfes. Understanding nutrition 15 ed. Cengage Learning</li><li>11. Mahan, L. K., Escott-Stump, S., &amp; Krause, M. V. Krause's food &amp; nutrition therapy. Elsevier Saunders.</li></ol> |
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