

Undergraduate Programme in Biology

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MODULE HANDBOOK

Module Name	Genetic
Module level, if applicable	Bachelor
Code, if applicable	BIO414009
Subtitle, if applicable	-
Courses, if applicable	Genetic
Semester(s) in which the module is taught	3 rd (third)
Person responsible for the module	Dian Aruni Kumalawati, M.Sc
Lecturer(s)	Dian Aruni Kumalawati, M.Sc
Language	Bahasa Indonesia
Relation to curriculum	Compulsory course in the second year (3 rd semester) Bachelor Degree
Type of teaching, contact hours	150 minutes lectures, 180 minutes structured activities, 180 minutes individual study, 170 minutes laboratory practical per week.
Workload	Total workload is 181,3 hours per semester, which consists of 150 minutes lectures per week for 14 weeks, 180 minutes structured activities per week, 180 minutes individual study per week (in total is 16 weeks per semester, including mid exam and final exam), 170 minutes laboratory practical (in total is 8 weeks per semester, including individual study and structured activities).
Credit points	4 credits (6 ECTS)
Requirements according to the examination regulations	Students must meet a minimum attendance of 75% of the total meetings to be able to take the final exam
Recommended prerequisites	No prerequisites stated on
Module objectives/intended learning outcomes	After completing this course, the students: CO 1. Students can apply the basic concepts of genetics and inheritance CO 2. Students are able to analyze and explain the concept of the genetic material organization in cells CO 3. Students are able to apply basic concepts in explaining and analyzing genetic abnormalities CO4. Students are able to analyze and explain the structure and function of genetic material such as DNA, RNA, chromosomes, nucleotides and the process of expression of genetic material in an organism. CO5. Students are able to explain and analyze gene expression in the form of visible and inherited traits, in an integrative-interconnective way (vision and core values of UIN Sunan Kalijaga) in research in the form of research or final projects.
Content	a. Introduction to Genetic. b. Genetic materials. c. Chromosome function and structure.

	d. Cell cycle and cell division e. DNA replication. f. Gene expression (transcription and translation). g. Karyotype. h. Mendelian Law. i. Mendelian Law deviation. j. Sex determination and sex linkage. k. Introduction to population genetic. l. Epigenetic.																																																									
Study and examination requirements and forms of examination	The final mark will be weighted as follows: <table><tr><th>NO</th><th>Assessment methods (components, activities)</th><th>Weight (percentage)</th></tr><tr><td>1</td><td>Final Examination</td><td>25%</td></tr><tr><td>2</td><td>Mid-Term Examination</td><td>25%</td></tr><tr><td>3</td><td>Class Activities : Quiz, Homework, etc.</td><td>20%</td></tr><tr><td>4</td><td>Laboratory practical</td><td>30%</td></tr></table> The final assessment is expressed in the form of a letter value converted from a number value with the following categories: <table><tr><th>NO</th><th>Number Value</th><th>Letter Value</th><th>NO</th><th>Number Value</th><th>Letter Value</th></tr><tr><td>1</td><td>≥ 95</td><td>A</td><td>7</td><td>65-69.99</td><td>B/C</td></tr><tr><td>2</td><td>90-94.99</td><td>A-</td><td>8</td><td>60-64.99</td><td>C+</td></tr><tr><td>3</td><td>85-89.99</td><td>A/B</td><td>9</td><td>55-59.99</td><td>C</td></tr><tr><td>4</td><td>80-84.99</td><td>B+</td><td>10</td><td>50-54.99</td><td>C-</td></tr><tr><td>5</td><td>75-79.99</td><td>B</td><td>11</td><td>55-34.99</td><td>D</td></tr><tr><td>6</td><td>70-74.99</td><td>B-</td><td>12</td><td><35</td><td>E</td></tr></table>	NO	Assessment methods (components, activities)	Weight (percentage)	1	Final Examination	25%	2	Mid-Term Examination	25%	3	Class Activities : Quiz, Homework, etc.	20%	4	Laboratory practical	30%	NO	Number Value	Letter Value	NO	Number Value	Letter Value	1	≥ 95	A	7	65-69.99	B/C	2	90-94.99	A-	8	60-64.99	C+	3	85-89.99	A/B	9	55-59.99	C	4	80-84.99	B+	10	50-54.99	C-	5	75-79.99	B	11	55-34.99	D	6	70-74.99	B-	12	<35	E
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Media employed	White-board, Lcd Projector, e-learning (https://daring.uin-suka.ac.id/)																																																									
Reading list	1. Albert B, Johnson A, Lewis J, Raff M, Roberts K, and Walter P. 2008. <i>Molecular Biology of the Cell</i>. Garland Science, taylor & Francis Group. New York. 2. Campbell, N.A., J.B. Reece, and L.G. Mitchell. 1999. <i>Biologi</i>. Edisi Kelima. Penerbit Erlangga. Jakarta. 3. Dale, J.W. and von Schantz, M. 2002. From Gene to Genomes. John Wiley & Sons, Ltd 4. Klug, W.S, Cummings, M.R, Spencer, C.A, Palladino, M.A, Killian, D. 2010. Concepts of Genetic. 12th Edition. Pearson Publisher. 5. Snustad, P.D, Simmons, M.J. 2016. Principles of Genetics. 7th Edition. John Wiley & Sons, Ltd 6. Travers, A and Muskhelishvili, G. 2015. DNA Structure and Function. FEBS Journal 282 (2015) 2279–2295 7. O'Donnell, M ,Langston, L , Stillman, B. 2013. Principles and Concepts of DNA Replication in Bacteria, Archaea, and Eukarya. <i>Cold Spring Harb Perspect Biol</i> 2013;5:a010108 8. Stewart, F. 2010. The Anatomy of a Chromosome. <i>Ulster Med J</i> 2010;79(3):110-113																																																									

	9. Schacherer, J. 2016. Beyond the simplicity of Mendelian inheritance. <i>C. R. Biologies</i> 339 (2016) 284–288 10. Chong, J.X, et al. 2015. The Genetic Basis of Mendelian Phenotypes: Discoveries, Challenges, and Opportunities. <i>Am J Hum Genet</i>. 2015 Aug 6; 97(2): 199–215. 11. Daryono, B.S., Kumalawati, D.A. 2011. Identification of Local Melon (<i>Cucumis melo</i> L. var. <i>Bartek</i>) Based on Chromosomal Characters. <i>HAYATI J Biosci</i> Vol. 18 (4) : 197-200.
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PLO and CO Mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11
CO 1					√						√
CO 2					√						√
CO 3						√		√			
CO 4				√		√		√			
CO 5				√				√			