

Subject card

Subject name and code	Essential biology - lecture, PG_00148371						
Field of study	Medical Biology						
Date of commencement of studies	October 2025		Academic year of realisation of subject			2025/2026	
Education level	Bachelor's studies		Subject group			Obligatory subject group in the field of study Subject group related to scientific research in the field of study	
Mode of study	full-time studies		Mode of delivery			at the university	
Year of study	1		Language of instruction			Polish	
Semester of study	1		ECTS credits			2.0	
Learning profile	academic		Assessment form			exam	
Conducting unit	Laboratory of Molecular Evolution and Bioinformatics -> Department of Evolutionary Genetics and Biosystematics -> Faculty of Biology -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Aleksandra Naczka				
	Teachers		dr Aleksandra Naczka				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	0.0	30
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	30		4.0		16.0	50
Subject objectives	1. to learn the fundamentals of the structure, biology and classification of living organisms; 2. to understand the biological processes determining life at different levels of its organisation; 3. to understand the functions and importance of different groups of organisms in nature; 4. to understand the interdependence of interactions between organisms and their environment and between these organisms and each other; 5. to be able to recognise and classify different groups of organisms.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[BIOLMEDL3_W01] explains the differences in the structure and function of a prokaryotic and eukaryotic cell	- explains the basic concepts of biology, demonstrates the structure and functional relationships at cellular, tissue, organ and organismal level	[SW4] test/exam - oral or written
	[BIOLMEDL3_W02] describes the structure and properties of basic types of biological macromolecules, molecular mechanisms of the pathways of basal metabolism and flow of genetic information, and sources of variation in organisms; explains the rules of inheritance	- describes the flow of genetic information and the sources of variation organisms, explains the rules of inheritance	[SW4] test/exam - oral or written
	[BIOLMEDL3_K01] understands the need for lifelong learning and to update his/her knowledge of medical biology and related disciplines	- understands the need for lifelong learning and updating knowledge of medical biology and related disciplines	[SK1] oral statement/conversation/discussion [SK2] presentation/project/paper/report
	[BIOLMEDL3_W03] knows the structure of the animal or human organism, the processes and functional relationships at the cellular, tissue, organ and organismal levels, and explains their relationship to behavior and adaptation of the organism to changing environmental conditions	- explains the basic concepts of biology, demonstrates the structure and functional relationships at cellular, tissue, organ and organismal level - explain the basic principles and describe the mechanisms by which life functions at the at the population, biocenosis and ecosystem level	[SW4] test/exam - oral or written
	[BIOLMEDL3_W04] presents the characteristics, systematics and evolution of selected groups of organisms including molecular basis and describes the basic concepts and mechanisms of evolution	- presents the characteristics, systematics and evolution of selected groups of organisms	[SW4] test/exam - oral or written
	[BIOLMEDL3_U05] synthesises data from different sources and draws appropriate conclusions from them	- can use specialist literature, select information, draw conclusions and express himself/herself on a given subject in the field of biological sciences	[SU1] oral statement/conversation/discussion [SU2] presentation/project/paper/report

Subject contents	Lecture topics: 1) The origins of life on Earth, a review of contemporary theories and views. 2) The world of RNA. 3) Evolutionary history of life on Earth. 4) Levels of organisation of life. 5) Cell biology. 6) Reproduction. 7) Mechanisms of evolution. 8) Basics of taxonomic division of living organisms. 9) Organisation at population, biocenosis and ecosystem level. 10) Features of a biological population. 11) Interspecies interactions. 12) Phylogeography.		
Prerequisites and co-requisites	Knowledge of basic biology, within the scope of secondary school.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	written exam	51.0%	100.0%
Recommended reading	Basic literature Futuyma DJ. 2005. Evolution. Wydawnictwo Uniwersytetu Warszawskiego. Freeland JR. 2021. Molecular ecology. Wydawnictwo naukowe PWN. Dzik J. 2020. Evolution. The creative power of selection. Wydawnictwo Uniwersytetu Warszawskiego. Dzik J. 2018. Biology or the meaning of life. Wydawnictwo Uniwersytetu Warszawskiego.		

	Supplementary literature	1. Stanley S. M. (2002): Historia Ziemi. Wydawnictwo Naukowe PWN, Warszawa 2. Kunicki-Goldfinger W.J.H. (2001): Życie bakterii. Wydawnictwo Naukowe PWN, Warszawa 3. Weiner J. (2012): Życie i ewolucja biosfery. Podręcznik ekologii ogólnej. Wydawnictwo Naukowe PWN, Warszawa 4. Krzanowska H., Łomnicki A., Rafiński J., Szarski H., Szymura J. M. (2002): Zarys mechanizmów ewolucji. Wydawnictwo Naukowe PWN, Warszawa 5. Yong E. 2018. Mikrobiom. Najmniejsze organizmy, które rządzą światem. Wydawnictwo Uniwersytetu Jagiellońskiego.
	eResources addresses	
Example issues/ example questions/ tasks being completed	1. 95% of the biosphere is made up of just 6 elements, which of the following is not one of these 6: (a) hydrogen (b) phosphorus (c) sulphur (d) potassium 2. Which process related to apoptosis can start near the mitochondrion when cytochrome c molecules enter the cytoplasm: (a) phagocytosis (b) apoptotic vesicle formation (c) caspase cascade (d) nuclease cascade 3. In DNA replication, a newly synthesised DNA strand that is formed continuously and the replication fork moves in a 5'3' direction relative to it is referred to as: (a) delayed strand (b) Okazaki fragments (c) leading strand (d) matrix 4. The maximum number of cell divisions is determined by: (a) the end replication problem (b) the Hayflick limit (c) programmed cell death (d) cytokinesis	
Work placement	Not applicable	

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