

Subject card

Subject name and code	Tree of life, PG_00154464						
Field of study	Biology						
Date of commencement of studies	October 2024		Academic year of realisation of subject		2026/2027		
Education level	undergraduate studies		Subject group		Optional subject group		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	3		Language of instruction		Polish		
Semester of study	6		ECTS credits		1.0		
Learning profile	academic		Assessment form				
Conducting unit	Pracownia Ewolucji Molekularnej i Bioinformatyki -> Katedra Genetyki Ewolucyjnej i Biosystematyki -> Faculty of Biology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Marcin Górniak				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	15.0	0.0	0.0	0.0	15
	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	15		2.0		8.0	25
Subject objectives	Introduction of students to the evolution of life in the light of molecular phylogenetic research, from the RNA world through the origins of cellular life to the contemporary diversity of organisms.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[BIOLL3_W06] The graduate will know the characteristics, systematics and understand the evolution of selected groups of organisms including molecular basis and basic concepts and mechanisms of evolution		The student knows the groundbreaking events in the history of life on Earth. The student understands the connections between molecular phylogenetics and taxonomy.		[SW1] oral statement/ conversation/discussion [SW3] text preparation/written work		
	[BIOLL3_U04] The graduate will be able to apply statistical methods and computer algorithms and techniques to the description of phenomena and the analysis of biological data		The student uses molecular phylogenetics to describe the course of evolution. The student uses molecular phylogenetics to classify selected groups of organisms with the application of bioinformatics tools.		[SU1] oral statement/conversation/ discussion [SU3] text preparation/written work		
	[BIOLL3_W12] The graduate knows and understands the principles of using IT tools for data analysis and interpretation of natural phenomena and processes		The student knows the molecular methods used to reconstruct the phylogenetic tree of life.		[SW1] oral statement/ conversation/discussion [SW3] text preparation/written work		

Subject contents	1. RNA world, molecular fossils 2. Origins of life on Earth (LUCA) 3. Emergence of the cell nucleus 4. Endosymbiotic theory 5. Tree of life (Eubacteria, Archaea, Eukaryota) 6. Evolution of Eukaryota 7. History of organism classification 8. Classification and phylogeny (alpha taxonomy, numerical taxonomy, challenges in reconstructing phylogeny) 9. Genetic distance, hybridization and horizontal gene transfer, gene tree, species tree 10. Mapping traits on phylogenetic trees - describing evolution		
Prerequisites and co-requisites	None		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	activity during classes	51.0%	30.0%
	exam	51.0%	70.0%
Recommended reading	Basic literature	J. Dzik. History of Life on Earth. Scientific Publishing PWN.D. Futuyama. *Evolution*. University of Warsaw Press.	
	Supplementary literature	Darwin C. The Origin of Species By Means of Natural Selection. János Podani, Different from Trees, more than Metaphors: Branching SilhouettesCorals, Cacti, and the Oaks, Systematic Biology, Volume 66, Issue 5, September 2017, Pages 737753, https://doi.org/10.1093/sysbio/syx039	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	None		
Work placement	Not applicable		

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