University of Gdańsk

Subject card

Subject name and code	Mechanisms of evolution, PG_00132650		
Field of study	Biology		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2028/2029
Education level	Bachelor's studies	Subject group	Obligatory subject group in the field of study
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	5	ECTS credits	2.0
Learning profile	academic	Assessment form	credit
Conducting unit	Laboratory of Biosystematics and Ecology of Aquatic Invertebrates -> Department of Evolutionary Genetics and Biosystematics -> Faculty of Biology -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. Tadeusz Namiotko	
	Teachers		

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	2.0	18.0	50

Subject objectives

1 To understand the pathways and mechanisms of evolution.
2. Ability to use this knowledge to explain the causes and extent of biodiversity.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BIOLL3_W03] knows and understands at an advanced level the principles of life functioning at the level of populations, biocenoses and ecosystems, the determinants of biological diversity as well as the mechanisms and molecular basis of the evolution of organisms	Students will describe the basic concepts and mechanisms of evolution and explain the causes of biodiversity using selected examples of plants and animals.	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion
[BIOLL3_W07] knows the development of biology as a science, its connections with other disciplines and the principles of using biological knowledge in the economy and social life, including ways that are entrepreneurial	Students will be able to assess the development, current state of knowledge and critically evaluate the latest hypotheses of evolutionary biology, explain why it is the central theory of biology and indicate its relationship to other natural sciences.	[SW3] text preparation/written work

Subject contents

A short history of evolutionary biology. Major tenets of the evolutionary synthetic theory. Evolution at the population level: Hardy-Weinberg principle, systematic, dispersive and non-periodic factors responsible for elementary evolutionary change, models and examples of the efficiency of natural selection, the concept of the adaptive landscape. Evolution of quantitative traits. Concepts of species, barriers to gene flow, classification and examples of speciation modes. Problems of the genesis of altruistic traits. Limited aggression and evolutionarily stable strategy. Evolutionary benefits and costs of sexuality. The evolution of life histories. Introduction to evolutionary developmental biology. Evolutionary trends and rates of evolutionary change. Evolutionary biology versus creationism.

Prerequisites and co-requisites

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	exam test	51.0%	100.0%
	essay	51.0%	0.0%
Recommended reading	Basic literature	Futuyma D.J., Kirkpatrick M. 2017. Evolution. Oxford Univ. Press.	
	Supplementary literature	articles on evolutionary biology (e.g. from current and archive issues of Scientific American and from electronic sources)	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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