University of Gdańsk

Subject card

Subject name and code	Mechanisms of evolution, PG_00203455						
Field of study	Medical 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 Optional subject group 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	3		Language of instruction		Polish		
Semester of study	5		ECTS credits		3.0		
Learning profile	academic		Assessment form		exam		
Conducting unit	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		4.0		41.0	75
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
[BIOLMEDL3_K01] is aware of the importance of lifelong learning and keeping up to date with developments in medical biology and related disciplines, and applies this knowledge to the planning and design of professional activities	Students understand the need for lifelong learning and updating knowledge in evolutionary biology and related disciplines.	[SK1] oral statement/conversation/ discussion [SK3] text preparation/written work
[BIOLMEDL3_W08] has an advanced understanding of the development and current state of knowledge and the latest trends in medical biology; indicates their relationship with other disciplines of natural or medical sciences	Students will be able to assess the current state of knowledge and critically evaluate the latest hypotheses of evolutionary biology as well as indicate its relationship to other natural and medical sciences.	[SW1] oral statement/ conversation/discussion [SW3] text preparation/written work
[BIOLMEDL3_W03] has an advanced knowledge and understanding of the characteristics, systematics and evolution of selected groups of organisms, taking into account their molecular basis, and describes the fundamental concepts and mechanisms of evolution; furthermore, the student describes, explains and compares, at an advanced level, the systemic regulatory mechanisms in animal and human organisms (including from an ontogenetic and phylogenetic perspective) and understands the neurobiological and genetic basis of disorders	Students will describe the basic concepts and mechanisms of evolution.	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion
[BIOLMEDL3_U05] reads with understanding scientific texts in Polish and simple texts in English in the field of medical biology; independently searches and uses available sources of information, including electronic sources	Students will read with comprehension popular science texts in Polish in the field of evolutionary biology; they will independently search and use available sources of information, including electronic sources.	[SU1] oral statement/conversation/ discussion [SU3] text preparation/written work
[BIOLMEDL3_K02] is aware of their own limitations and knows when to turn to experts who have the resources, technologies and knowledge to provide certainty on a given topic, save time and avoid mistakes	Students are aware of their own limitations and know when to turn to experts.	[SK1] oral statement/conversation/ discussion [SK3] 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%	90.0%
essay	51.0%	10.0%

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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