University of Gdańsk

Subject card

Subject name and code	Mechanisms of evolution, PG_00117610						
Field of study	Genetics and Experimental Biology						
Date of commencement of studies	October 2024		Academic year of realisation of subject	2026/2027			
Education level	undergraduate studies		Subject group	Obligatory subject group in the field of study 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	5		ECTS credits	2.0			
Learning profile	academic		Assessment form				
Conducting unit	Katedra Genetyki Ewolucyjnej i Biosystematyki -> Faculty of Biology						
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	0.0	30.0	0.0	0.0	0.0	30
	E-learning hours included: 0.0						
	Additional information: Introductory informative lecture, discussion, work with text, case study, multimedia presentation						
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
[GBEL3_K07] Lifelong learning and updating knowledge in the field of molecular genetics and other disciplines.	The graduate will be aware of the limits of his or her own knowledge and understand the need for constant learning and development and will be open to new ideas	[SK1] oral statement/conversation/ discussion
[GBEL3_W06] the development and current state of knowledge, as well as the latest trends in molecular genetics and related fields; indicating their relationship with other disciplines in the natural or medical sciences and the possibilities of their practical application.	The graduate 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.	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report
[GBEL3_W01] Understanding the structure and properties of basic types of biological macromolecules, molecular mechanisms of metabolic pathways and genetic information flow, as well as sources of genetic variability in organisms and mechanisms of evolution; explaining the rules of inheritance, elucidating differences in the structure and functioning of prokaryotic and eukaryotic cells, and understanding the structure and functional relationships at the cellular and tissue levels.	The graduate 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 [SW2] presentation/project/paper/ report
[GBEL3_U04] Capable of reading scientific texts in English and Polish with comprehension, synthesizing the knowledge contained within them, preparing well-documented studies on biological issues, as well as those related to research commercialization.	The graduates will find by themself and use reliable sources of information on evolutionary biology, including electronic sources in English and will be able to prepare reports/presentations on various topics in evolutionary biology	[SU3] text preparation/written work

Subject contents

The concept of natural selection, genetic drift and sexual selection. Natural selection as a factor responsible for adaptive change. Evolution of quantitative traits. Concepts of species. Adaptive radiations, evolutionary trends and rates of evolutionary change. Evolution of biodiversity, mass extinctions. Selected topics on the major transitions in evolution, key periods in the history of life on Earth and the origin of some higher taxa. Problems of the genesis of altruistic traits. Limited aggression and evolutionarily stable strategy. Evolutionary benefits and costs of sexuality.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
test	51.0%	40.0%
essay	51.0%	20.0%
presentation	51.0%	20.0%
discussion and written tasks	51.0%	20.0%

Recommended reading

Basic literature	Futuyma D.J., Kirkpatrick M. 2017. Evolution. Oxford Univ. Press. articles on evolutionary biology (e.g. from current and archive issues of Scientific American and from electronic sources)
Supplementary literature	articles on evolutionary biology (e.g. from current and archive issues of Scientific American and from electronic sources)
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed

Work placement

Not applicable

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