

Subject card

Subject name and code	Population ecology, PG_00154784						
Field of study	Natural Resources Conservation						
Date of commencement of studies	October 2023	Academic year of realisation of subject			2025/2026		
Education level	Bachelor's studies	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			2.0		
Learning profile	academic	Assessment form			credit		
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 hab. Andre Viola De Moura				
	Teachers		dr hab. Andre Viola De Moura				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	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		3.0		32.0	50
Subject objectives	- To present and discuss the current knowledge on demography and mechanisms regulating the abundance and distribution of individuals within the population - To deepen the knowledge of the intraspecific/population ecological interactions in plants and animals - To understand the effects of interspecific competition on demographic growth - To understand patterns and drivers of intra/interspecific cooperation - To present and discuss issues concerning protection, management and sustainable exploitation of wild plant and animal populations						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[OZPL3_K08] The graduate is ready to systematically update his/her natural knowledge and to apply it in practice	- systematically updates the knowledge of population ecology and knows its practical applications	[SK4] test/exam - oral or written
	[OZPL3_K01] The graduate is ready to recognise the limitations in his/her own knowledge and understands the need for continuous learning and development	- recognizes the limitations of own knowledge of population ecology and understands the need for continuous learning and development	[SK4] test/exam - oral or written
	[OZPL3_W14] The graduate understands the relationship between the achievements of natural sciences and their potential applications in socio-economic contexts, while considering the sustainable use of biodiversity	- understands the relationship between fundamental population processes and the principles of sustainable use of wild plant and animal populations	[SW4] test/exam - oral or written
	[OZPL3_U03] The graduate is able to search for and use available sources of biological information, including electronic sources, and critically analyse them	- selects, applies and critically confronts biological information from various sources, including internet, concerning population ecology and draws reasonable conclusions on this basis	[SU4] test/exam - oral or written
	[OZPL3_W09] The graduate possesses an advanced comprehension of the current state of knowledge and the latest trends in biology, as well as their relationship to other natural disciplines	- recognizes the dynamic development of population ecology and indicates its relationships with other biological disciplines	[SW4] test/exam - oral or written
	[OZPL3_U07] The graduate is able to draw correct conclusions on the basis of analysis and synthesis of data from various sources	- draws correct conclusions based on the analysis and synthesis of data from various sources on population ecology and demographic factors	[SU4] test/exam - oral or written
	[OZPL3_U10] The graduate is able to use a specialised Polish and foreign language in a way that is understandable and accessible to both specialists and non-specialists	- speaks English at Level B2, using specialist vocabulary in population ecology in scientific discussion	[SU4] test/exam - oral or written
	[OZPL3_U13] The graduate is able to speak a foreign language at B2 level, using specialised vocabulary	- speaks English at Level B2, using specialist vocabulary in population ecology in scientific discussion	[SU4] test/exam - oral or written
	[OZPL3_W05] The graduate understands the fundamental principles and mechanisms of life at the population, biocenosis, and ecosystem levels, as well as the temporal and spatial factors that influence biodiversity	- explains the factors and mechanisms influencing the size/density of plant and animal populations	[SW4] test/exam - oral or written
Subject contents	An overview of the definitions of a population, metapopulation, source/sink populations. Demography: population size/density, birth rate, death rate, immigration, emigration. Trends in the population size and limiting factors. Patterns and mechanisms of intra/interspecific competition and cooperation. Distribution of a population. Applied ecology: protection, management and sustainable exploitation of wild plant and animal vertebrate populations. Similarities and differences in plant and animal populations. Case studies.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Written exam; in the case of resit exam – it is oral test	51.0%	100.0%

Recommended reading	Basic literature	Krebs C.J. 2011. Ekologia. Eksperymentalna analiza rozmieszczenia i liczebności. PWN, Warszawa. Begon M., Townsend CR., Harper JL. 2006. Ecology: from individuals to Ecosystems. 4. Ed. Blackwell. Cain ML., Bowman WD., Hacker SD. 2008. Ecology. Sinauer. Sunderland, Falińska K. 1990. Osobnik, populacja, fitocenoza. PWN, Warszawa. Begon M., Mortimer M., Thompson DJ. 1999. Ekologia populacji. Studium porównawcze roślin i zwierząt. PWN. Warszawa. Rockwood L.L. 2006. Introduction to population ecology. Blackwell Publishing. Malden
	Supplementary literature	Natoli A, Moura AE, Sillero N (2022) Citizen science data of cetaceans in the Arabian/Persian Gulf: Occurrence and habitat preferences of the three most reported species. Mar Mammal Sci 38:235255. doi: 10.1111/MMS.12865 Van Gils J. A., Lisovski S., Lok T., Meissner W., Ożarowska A., de Fouw J., Rakhimberdiev E., Soloviev M. Y., Piersma T., Klaassen M. 2016. Body shrinkage due to Arctic warming reduces red knot fitness in tropical wintering range. Science 352 (6287): 819-821; doi: 10.1126/science.aad6351.
	eResources addresses	
Example issues/ example questions/ tasks being completed	Q3. Factors such as temperature and precipitation that affect a species distribution can be described as: A Intrinsic and Biotic B Density-dependent C Extrinsic and Biotic D Extrinsic and Abiotic E Intrinsic and Abiotic Q4. The location containing the conditions and resources in which a species is able to survive and successfully reproduce is called: A Realized niche B Fundamental niche C Habitat D Ecosystem E Adaptive zone 2. In nature, different species commonly compete for access to the same essential resources. However, several strategies exist to minimize such competition, thus reducing its negative consequences. Name and briefly describe two such strategies, illustrating each with a real-life example. [max. 300 words]	
Work placement	Not applicable	

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