University of Gdańsk

Subject card

Subject name and code	Evolutionary and Behavioral Ecology, PG_00121301		
Field of study	Environmental Protection		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2025/2026
Education level	Master's studies	Subject group	Optional subject group
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish
Semester of study	3	ECTS credits	2.0
Learning profile	academic	Assessment form	credit
Conducting unit	Laboratory of Vertebrate Ecology and Ethology -> Department of Vertebrate Ecology and Zoology -> Faculty of Biology -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. Katarzyna Wojczulanis-Jakubas	
	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	5.0	15.0	50

Subject objectives

The goul of the course is to provide knowledge of animal behavior and to develop an understanding of thesebehaviors in the context of evolution.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[OŚMU2_W04] Chooses methods, techniques and research tools used in environmental protection.	The student understands the issue of ethics in animal research and knows the guidelines for the principles of animal research.	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion
[OŚMU2_W05] Describes development directions and the latest discoveries in the field of scientific disciplines related to environmental protection.	Not relevant	[SW4] test/exam - oral or written
[OŚMU2_U06] Defines her/his interests and develops them within the chosen specialisation and themes of her/his master's thesis while implementing the process of self-education and planning of own future career.	The student is able to pose a research question about animal behavior and answer it in the context of evolutionary and behavioral ecology.	[SU1] oral statement/conversation/ discussion [SU4] test/exam - oral or written
[OŚMU2_K10] Has a need for continuous professional development.	The student understands the need for a continuous verification of the facts on evolutionary and behavioral ecology, based on the latest scientific findings.	[SK1] oral statement/conversation/ discussion [SK4] test/exam - oral or written [SK5] implementation of a problem task
[OŚMU2_W01] Describes complex phenomena and processes occurring in nature, including those related to the spread of anthropogenic pollution.	The student is able to interpret animal behavior in the context of various environmental factors (including anthropogenic pollution).	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion [SW5] implementation of a problem task

Subject contents

- Natural selection and adaptations.
- Hypothesis testing in behavioral ecology.
- Evolution of life history strategies.
- Economic decisions/Optimization/Evolutionary arms race.
- Competition for resources.
- Group life.
- Sexual selection and sexual conflict.
- Sex allocation.
- Parental care and family conflict.
- Reproductive systems.
- Evolution of communication signals.

Prerequisites and co-requisites

No forma/aditional pre-requirements

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
written exam test	51.0%	100.0%

Recommended reading

Basic literature

Krebs, J.R. i N.B. Davies. 2014. Wprowadzenie do Ekologii Behawioralnej. PWN W-wa

A. Łomnicki. 2012. Ekologia ewolucyjna. PWN, W-wa

Supplementary literature

Scientific papers, including:

- Araya-Salas M, Wojczulanis-Jakubas K, Phillips EM, et al (2017) To overlap or not to overlap: context-dependent coordinated singing in lekking longbilled hermits. Anim Behav 124:. doi: 10.1016/j.anbehav. 2016.12.003
- Wojczulanis-Jakubas K, Jakubas D, Øigarden T, Lifjeld JT (2009) Extrapair copulations are frequent but unsuccessful in a highly colonial seabird, the little auk, Alle alle. Anim Behav 77:433438. doi: 10.1016/ j.anbehav.2008.10.019
- Grissot A, Araya-Salas M, Jakubas D, et al (2019) Parental Coordination of Chick Provisioning in a Planktivorous Arctic Seabird Under Divergent Conditions on Foraging Grounds. Front Ecol Evol 7:. doi: 10.3389/fevo.2019.00349
- Wojczulanis-Jakubas K (2021) Being the winner is being the loser when playing a parental tug-of-war a new framework on stability of biparental care. Front Ecol Evol 9:. doi: 10.3389/fevo.2021.763075

eResources addresses

Example issues/ example questions/ tasks being completed

QUESTION: A pair of dung flies copulates for an average of 35 minutes which is enough to fertilize about 80% of the eggs. The pair does not copulate to reach 100% fertilized eggs becauseA) it is physically impossible to fertilize 100% of the eggsB) the male thus saves semen, which he can pass on to the next partner, thus increasing the genetic diversity of his offspringC) such a time and number of fertilized eggs is most beneficial in a situation of tremendous competition for access to the female, where other males can take over the female at any time and remove the sperm of his predecessorD) such time and number of fertilized eggs is a genetically determined trait, fixed by group selection. **QUESTION: The posted diagram can illustrate (the corresponding figure is given on the test):**A) the distribution of a trait in a population after the action of stabilizing selectionB) the distribution of a particular trait in a population of a stenotypic organism occurring in a broad gradient environment C) alternative distributions of a trait of a eurhythmic organismD) theoretical distributions of the depths occupied by aquatic organisms during the light and dark phases of the day (daily migrations of plankton)

Work placement

Not applicable

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