University of Gdańsk

Subject card

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| Subject name and code | Ecophysiology of Marine Animals - lecture, PG_00204900 | | |
| Field of study | Oceanography | | |
| Date of commencement of studies | October 2027 | Academic year of realisation of subject | 2027/2028 |
| Education level | Master's studies | Subject group | Obligatory subject group in the field of study<br>Optional subject group<br>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 | 1 | Language of instruction | Polish |
| Semester of study | 1 | ECTS credits | 3.0 |
| Learning profile | academic | Assessment form | exam |
| Conducting unit | Laboratory of Ecophysiology and Bioenergetics -> Department of Marine Ecology -> Faculty of Oceanography and Geography -> Rector | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | prof. dr hab. Monika Normant-Saremba | |
| | 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**

Learning about the basic life processes of marine animals, as well as their behavioral and physiological adaptations to the environment and occurring changes.

**Learning outcomes**

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [OCEANMU2-W03] has an in-depth understanding of research methods used in oceanography and related sciences, and interprets their mechanisms and interrelationships across different spatial and temporal scales | Knows and understands in-depth research methods used in ecophysiological studies of marine animals. | [SW4] test/exam - oral or written |
| [OCEANMU2-W04] has an in-depth understanding of the latest research trends in oceanography, as well as the possibilities for practical application of related achievements; evaluates their usefulness and limitations in solving scientific research problems, and critically analyzes and assesses their applicability | Knows and understands in-depth the latest research trends in the ecophysiology of marine animals, as well as the possibilities of practical application of scientific achievements. | [SW4] test/exam - oral or written |
| [OCEANMU2-W02] knows and understands complex processes and phenomena occurring in the marine environment, with particular emphasis on the coastal zone, as well as complex relationships between living and non-living elements of the aquatic environment | Knows and understands in depth the course of complex physiological processes in animals living in the marine environment, including the coastal zone, as well as the dependence of these processes on changes occurring in the environment. | [SW4] test/exam - oral or written |

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| Subject contents | The lecture topics include the following issues: introduction to ecophysiology, food consumption and assimilation, excretion, water-ion regulation, respiration and circulation, energy metabolism, energy value and biochemical composition, energy balance and individual production, control and regulation of physiological functions, behavioral-physiological adaptation of animals to the environment and changes occurring in it, practical application of ecophysiological research results - behavioral and physiological biomarkers in diagnostics, environmental monitoring and forecasting changes, ethics in physiological research - limiting the number of animals in research, their pain and suffering. | |
| Prerequisites and co-requisites | | |
| Assessment methods and criteria | | |

| Subject passing criteria | Passing threshold | Percentage of the final grade |
|---|---|---|
| Test/ exam | 51.0% | 100.0% |

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| Recommended reading | Basic literature | Hochachka P. W., Somero G. N., 1973. Strategies of Biochemical Adaptation. W.B. Saunders Company, Philadelphia.<br><br>Prus T., 1975. Chapter 5: Calorimetry and Body Composition, 5A Measurement of calorific value using Phillipson microbomb calorimeter. In: Grodzinski In., Klekowski R.Z., Duncan A. (eds), Methods for Ecological Bioenergetics. IBP Handbook No. 24, Blackwell Scientific Publications, 149- 160.<br><br>Schmidt-Nielsen K., 1997. Animal Physiology - Adaptation to Environment. 5th Edition, Cambridge University Press.<br><br>Solan M., Whiteley N.M., 2016. Stressors in the Marine Environment. Physiological and ecological responses; societal implications. Oxford University Press.<br><br>Willmer, P., Stone, G., Johnston, I., 2000. Environmental Physiology of Animals. Blackwell Science Ltd. |
| | Supplementary literature | Harris, R.R., Aladin, N.V., 1997. The ecophysiology of osmoregulation in Crustacea. W: Hazon, N., Eddy, F.B., Flik, G. (eds.), Ionic Regulation in Animals. Springer, Berlin, 1-25.<br><br>Kay I., 1998. Introduction to Animal Physiology. BIOS Scientific Publishers Limited. |
| | eResources addresses | |
| Example issues/ example questions/ tasks being completed | Tolerance and physiological stress zones, acclimation, acclimatization and adaptation, physiological phenotypic plasticity, conformity and regulation, physiological processes and body mass, biological rhythms, homeostasis, reception and processing of stimuli from the environment, regulation and coordination of chemical processes in cells and tissues, digestion and food assimilation efficiency, respiration, ventilation, heart rate and oxygen transport, aerobic and anaerobic metabolism, excretion of metabolic products, maintaining water-ion balance, individual production, behavioral and physiological indicators of animal condition and of environmental changes, effect of endo- and exogenous factors on the rate of the physiological processes. | |
| Work placement | Not applicable | |

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