

Module of classes:

BIOLOGICAL CLOCKS IN LIVING ORGANISMS

ECTS	2
Status	complementary
Form of final credit	exam
Prerequisites	knowledge and skills in physiology

Field of study:

ANIMAL SCIENCES

Profile of study	General-academic
The code of the form of study and the level of study	master of thesis
Semester of study	summer
Language of study	English

The leading faculty, department and the lecturer of the module: Prof. dr hab. Dorota Zięba-Przybylska

Name of the competent unit for the coordinator	Faculty of Animal Sciences, Department of of Animal Nutrition, and Biotechnology, and Fisheries
Course coordinator	Prof. dr hab. Dorota Zięba-Przybylska

Learning outcomes of the module/subject

The code of the description component (symbol of the effect)	Description	Relation to (code)	
		field effect	discipline#

KNOWLEDGE – the student knows and/or understands:

BCL_W1	basic types of cell, principles and techniques for conducting research work; basic theories in the field of in vitro cell culture	ZOO2_W01	RZ
BCL_W2	knows to an advanced extent the range of in vitro cell culture techniques and methods used in animal sciences, allowing for the interpretation of the results of conducted research	ZOO2_W05	RZ
BCL_W3	general principles of creating and developing forms of individual entrepreneurship, using knowledge in the fields of science and scientific disciplines, relevant to the	ZOO2_W13	RZ

SKILLS – the student can:

BCL_U1	apply methods of in vitro cell, tissues culture, use an appropriate techniques to perform research tasks	ZOO2_U02	RZ
P7S_U2	use analytical methods and modern scientific-research apparatus	ZOO2_U08	RZ
P7S_U3	carry out research tasks under the supervision of a tutor regarding the studied field, correctly interpret the results obtained and draw conclusions	ZOO2_U17	RZ

SOCIAL COMPETENCE- the student is ready to:

_K1	earning and continuous education throughout life, can organize the learning process of other people	ZOO2_K01	RZ
P7S_K2	solve complex decision problems related to the use of animals and is aware of the need to make a critical evaluation of the results of the use of various methods and	ZOO2_K05	RZ
P7S_K3	act in accordance with the principles of ethics in professional and social work	ZOO2_K08	RZ

Teaching content:

Lectures		15	hours
Subjects of lectures	History of discovery of biological clock.		
	Melatonin - characteristics in animal and plant species.		
	Seasonality of reproduction in seasonal long and short-day breeders		
	Review of phenomena connected with seasonality – birds migration, moulting, stupor, winter sleep, aestivation, lactation, circadian physiological processes, circannual processes		
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	The molecular basis of the biological clocks.		
Realized learning outcomes		ZOO2_W01,05,13; ZOO2_U02, 08, 17; ZOO2_K01, 05, 08	
Verification methods and criteria of effects evaluation		short test evaluating the knowledge	
Classes (laboratories, field exercises, auditorium exercises etc. ...)		not applicable hours	
Subjects of the classes			
Realized learning outcomes		not applicable	
Verification methods and criteria of effects evaluation		not applicable	
Seminars		not applicable hours	
Subjects of the seminars			
Realized learning outcomes		not applicable	
Verification methods and criteria of effects evaluation		not applicable	
Literature:			
Basic	1. Cymborowski B. Zegary biologiczne. PWN 1987. 2. Sotowska-Brochocka J. Fizjologia zwierząt, zagadnienia wybrane. Wydawnictwo Uniwersytetu Warszawskiego, 81-123, 290-302, 2001. 3. Traczyk Z. Fizjologia Człowieka w zarysie. Wydawnictwo Lekarskie PZWL, Warszawa 2000.		
Supplementary	1. D.A. Zieba, B. Klocek, G.L. Williams, K. Romanowicz, L. Boligłowa, M. Wozniak. In vitro evidence that leptin suppresses melatonin secretion during long days and stimulates its secretion during short days in seasonal breeding ewes. <i>Domest. Anim. Endocrinol.</i> 2007; 33(3): 358-365. 2. D.A. Zieba, M. Szczesna, B. Klocek-Gorka, E. Molik, T. Misztal, G.L. Williams, K. Romanowicz, E. Stepien, D.H. Keisler, M. Murawski. Seasonal effects of central leptin infusion on melatonin and prolactin secretion and on SOCS-3 gene expression in ewes. <i>J. Endocrinol.</i> 2008; 198: 147-155		
Structure of learning outcomes:			
Discipline – animal husbandry and fishery (RZ)		2	ECTS*
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Structure of student's activities:			
classes carried out with direct participation of the teacher		25	hours
including:	lectures	15	hours
	classes and seminars	0	hours
	consultations	7	hours

participation in research	0	hours		
mandatory practices and internships	0	hours		
participation in the exam and credits	3	hours		
classes carried out with the use of e-learning	0	hours	0	ECTS*
student's own work	25	hours	1	ECTS*

) * - Reported to the nearest to 0,1 ECTS, where 1 ECTS = 25-30 hours of classes

) # discipline code: RZ - zootechnics and fishery, PB - biological sciences