

Module of classes:

THE BASICS OF NUTRIGENOMICS

ECTS	3
Status	complementary
Form of final credit	exam
Prerequisites	Basic knowledge on nutrient composition of feed, gene expression and molecular biology

Field of study: animal science

BIOENGINEERING IN ANIMAL SCIENCE

Profile of study	general-academic
The code of the form of study and the level of study	SM
Semester of study	winter or summer
Language of study	english

The leading faculty, department and the lecturer of the module:

Name of the competent unit for the coordinator	Faculty of Animal Sciences, Department of Animal Nutrition and Biotechnology,
Course coordinator	Paweł Górka

Learning outcomes of the module/subject

The code of the description component (symbol of the effect)	Description	Relation to field effect
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KNOWLEDGE – the student knows and/or understands:

H.KZDa.NUT9.SM.HBIOY_W1	basic types and types of experiments, principles, methods and techniques for conducting research work; basic theories in the field of scientific disciplines relevant to the studied field	ZOO2_W01
H.KZDa.NUT9.SM.HBIOY_W2	Knows to an advanced extent the range of analytical techniques and methods used in animal sciences, allowing for the interpretation of the results of conducted research	ZOO2_W05
H.KZDa.NUT9.SM.HBIOY_W3	The issues of digestion, metabolism and absorption of nutrients and energy conversion in animals, as well as the principles of nutrition and the consequences of improper animal nutrition	ZOO2_W08

SKILLS – the student can:

H.KZDa.NUT9.SM.HBIOY_U1	Apply methods of breeding biotechnology, use molecular genetics techniques to perform research tasks, and apply genetic engineering techniques to identify the carrier of genes that determine genetic diseases and animal traits	ZOO2_U02
H.KZDa.NUT9.SM.HBIOY_U2	Assess physiological and pathological parameters in animals as well as threats resulting from exposure of animals to environmental factors and formulate the manner and procedure of dealing with animals during experiments	ZOO2_U09

SOCIAL COMPETENCE- the student is ready to:

H.KZDa.NUT9.SM.HBIOY_K1	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 decision support techniques in the management of the herd	ZOO2_K05
H.KZDa.NUT9.SM.HBIOY_K2	Be aware of the responsibility for the transmitted professional content as part of advisory and dissemination activities	ZOO2_K09

Teaching content:

Lectures **15**

Subjects of lectures	<p>Nutrigenomic – definition, basics of the concept</p> <p>Concept of personalized nutrition</p> <p>Animal models in nutrigenomics</p> <p>The effect of nutrients on gene expression</p> <p>Molecular methods used in nutrigenomic</p> <p>Application of nutrigenomics in animal production</p>
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Realized learning outcomes	H.KZDa.NUT9.SM.HBIOY_W1, H.KZDa.NUT9.SM.HBIOY_W2, H.KZDa.NUT9.SM.HBIOY_W3
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Verification methods and criteria of effects evaluation	<i>Credit - multiple choice test; a positive mark requires at least 55% of correct the questions asked; the share of the lecture grade in the final grade is 60</i>
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Classes (laboratories, field exercises, auditorium exercises etc. ...) **15**

Subjects of the classes	<p>qRT-PCR – example of analysis</p> <p>mRNA expression – data analysis and interpretation</p> <p>Review of scientific paper</p>
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Realized learning outcomes	H.KZDa.NUT9.SM.HBIOY_U1, H.KZDa.NUT9.SM.HBIOY_U2, H.KZDa.NUT9.SM.HBIOY_K1, H.KZDa.NUT9.SM.HBIOY_K2
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Verification methods and criteria of effects evaluation	<i>Project - positive assessment should be answered correctly with 55% of a share of the grade for the project exercises in the final grade is 40%.</i>
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Seminars **0**

Subjects of the seminars	
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Realized learning outcomes	<i>code of learning outcomes of the seminars</i>
Verification methods and criteria of effects evaluation	<i>together with participation in the final evaluation</i>

Literature:

Basic	<ol style="list-style-type: none"> 1. Nutritional genomics. Discovering the Path to Personalized Nutrition. 2006. Kaput J., Wiley- Interscience. 2. Nutritional genomics. Impact on Health and Disease. 2006. Brigelius-Flohé r., Joost H VCH. 3. Wydawnictwa „Biotechnology in the feed industry”(Alltech, USA).
Supplementary	<ol style="list-style-type: none"> 1. Flaga J., Górka P., Kowalski Z.M., Kaczor U., Pietrzak P., Zabielski R. 2011. Insulin-like factors 1 and 2 (IGF-1 and IGF-2) mRNA levels in relation to the gastrointestinal tract (G development in newborn calves. Pol. J. Vet. Sci. 4:605-613. 2. Flaga J., Z.M. Kowalski, P. Górka. 2012. The effect of age and the type of liquid feed and insulin receptor isoforms mRNA expression in the jejunum of neonatal calves. J. Mic Food Sci. 2:324:328.

Structure of learning outcomes:

Dyscipline – animal husbandry and fishery (RZ)	3
Dyscipline –...	...

Structure of student's activities:

classes carried out with direct participation of the teacher	50	hours	1,5
including:			
lectures	15	hours	
classes and seminars	15	hours	
consultations	10	hours	
participation in research	5	hours	
mandatory practices and internships	0	hours	
participation in the exam and credits	5	hours	
classes carried out with the use of e-learning	0	hours	0
student's own work	50	hours	1,5

Syllabus valid from the academic year 2019/2020

) * - 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

nd molecular

and Fisheries

o (code)

discipline#

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R/P7S_WK
R/P7S_WG/1
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