

**Course name:****DAIRY CATTLE NUTRITION**

ECTS	5
Course status	obligatory
Course final assessment/evaluation of outcomes	exam
Prerequisites	knowledge and skills in animal nutrition

**Main field of study:****ANIMAL SCIENCE**

Profile of study	General-academic
The code of studies (education level)	SM
Semester of studies	summer
Language of instruction	English

**Course offered by:**

Name of faculty offering the course	Faculty of Animal Science
Name of the competent unit for the coordinator	Department of Nutrition, Biotechnology of Animals and Fisheries
Course coordinator	Prof. dr hab. Z. M. Kowalski (rzkowals@cyfronet.krakow.pl)

**Learning outcomes of the course:**

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

**KNOWLEDGE – the student knows and/or understands:**

Code	Description	Field effect	Discipline#
DAI_W1	Student can characterize the feedstuffs used in dairy cattle nutrition	ZOO2_W09	RZ
DAI_W2	Student explains the principles of feeding of dairy cattle according to the stage of lactation	ZOO2_W08	RZ
DAI_W3	Student explains the effect of feeding of cattle on milk yield and composition	ZOO2_W09	RZ
DAI_W4	Student can specify metabolic disorders caused by incorrect feeding	ZOO2_W08	RZ

**SKILLS – the student can:**

Code	Description	Field effect	Discipline#
DAI_U1	Student can assess the quality and nutritive value of feedstuffs for dairy cattle	ZOO2_U11	RZ
DAI_U2	Student can formulate the daily ration (depending on stage of lactation, condition) using computer programmes	ZOO2_U12	RZ
DAI_U3	Student can organize the feeding of dairy herd (group feeding)	ZOO2_U12	RZ

**SOCIAL COMPETENCE- the student is ready to:**

Code	Description	Field effect	Discipline#
DAI_K1	Student is aware of the self-regulated learning and of the dissemination of knowledge and skills in agricultural practice	ZOO2_K06	RZ
DAI_K2	Student is aware of the needs for consultation between the science and agriculture practice	ZOO2_K01	RZ
DAI_K3	Student is able to work in a team	ZOO2_K03	RZ

**Teaching content:**

<b>Lectures</b>	<b>30</b>	<b>hours</b>
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Topics of lectures	<p>The specificity of nutrient digestion and utilization in dairy cattle and dairy calves</p> <p>Assessment of nutritive value of feedstuffs used in dairy cattle nutrition</p> <p>The principles of feeding of cattle depending on the stage of lactation and physiological state</p> <p>The effect of feeding of cattle on milk yield and composition</p>
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Accomplished learning outcomes	<i>DAI_W1, DAI_W2, DAI_W3, DAI_W4, DAI_K1, DAI_K2, DAI_K3</i>
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Verification methods, rules and criteria of outcome assessment	<i>Exam in the form of single-choice test, evaluated according to a standard grading scale, pass received after reaching a minimum of 55% of correct answers.</i>
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<b>Classes</b>	<b>20</b>	<b>hours</b>
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Topics of the classes	<p>Quality of feedstuffs and calculation of nutritive value</p> <p>Diet formulation for dairy cows depending on the stage of lactation and physiological state. Total mixed rations and partially mixed rations. Prevention of metabolic diseases and reproduction failures.</p> <p>Feed management – balance at the farm level</p>
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Accomplished learning outcomes	<i>DAI_U1, DAI_U2, DAI_U3</i>
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Verification methods, rules and criteria of outcome assessment	<i>Exam in the form of single-choice test, evaluated according to a standard grading scale, pass received after reaching a minimum of 55% of correct answers.</i>
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<b>Seminars</b>	<b>0</b>	<b>hours</b>
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Topics of the seminars	
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Accomplished learning outcomes	
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Verification methods, rules and criteria of outcome assessment	
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**Literature:**

Basic	<ol style="list-style-type: none"> <li>1. <i>Animal Nutrition 7th edition, McDonald et al. Ed Prentice Hall, Pearson, USA. 2010.</i></li> <li>2. <i>Van Soest P.J. 1994. Nutritional Ecology of the Ruminant. Comstock Publishing Associates.</i></li> <li>3. <i>NRC, 2001. Nutrient Requirement of Dairy Cattle. National Academy Press, Washington, D.C.</i></li> </ol>
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Supplementary	<ol style="list-style-type: none"> <li>1. <i>Belay T.K., Svendsen M., Kowalski Z.M., Ádnøy T., 2017. Genetic parameters of blood <math>\beta</math>-hydroxybutyrate predicted from milk infrared spectra and clinical ketosis, and their associations with milk production traits in Norwegian Red cows. J. Dairy Sci., 100, 6298–6311</i></li> <li>2. <i>Hadam D., Kański J., Burakowska K., Penner G.B., Kowalski Z.M., Górka P., 2016. Effect of canola meal use as a protein source in a starter mixture on feeding behavior and performance of calves during the weaning transition. J. Dairy Sci., 99, 1247–1252</i></li> <li>3. <i>Kowalski Z.M., Górka P., Flaga J., Barteczko A., Burakowska K., Oprządek J., Zabielski R., 2015. Effect of microencapsulated sodium butyrate in close up diet on performance of dairy cows in early lactation period. J. Dairy Sci., 98, 3284-3291.</i></li> </ol>
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**Structure of learning outcomes:**

Discipline – animal husbandry and fishery (RZ)	5	ECTS**
Discipline –	-	ECTS**

<b>Structure of student's activities:</b>					
classes carried out with direct participation of the teacher		60	hours	2,4	ECTS**
including:	lectures	30	hours		
	classes and seminars	20	hours		
	consultations	8	hours		
	participation in research	-	hours		
	mandatory practices and internships	-	hours		
	participation in the exam and credits	2	hours		
classes carried out with the use of e-learning		-	hours	-	ECTS**
student's own work		65	hours	2,6	ECTS**

Syllabus valid from the academic year 2021/2022

**\* where 10 hours of classes = 1 ECTC (in case of 15 h → 2 ECTS)**

\*\* stated with an accuracy to 0.1 ECTS, where 1 ECTS = 25 - 30 hours of classes