

SYLLABUS (OF A COURSE/MODULE)

Course/module (as specified in the approved curriculum for the field of study) Module 1 – Animal Nutrition and Feed Management		ECTS 12	Catalogue number
Name in Polish Moduł 1 - Żywnienie zwierząt i paszoznawstwo			
Unit(-s) providing the course/module (Institute/Department) Department of Animal Nutrition and Feed Management			
Head of course/module dr hab. Damian Józefiak, prof. nadzw.			
Field of study Animal Husbandry	Level II – master studies	Profile Academic-general	Semester I
Specialisation Animal Production Management	MSc Specialisation Animal Production Management		
TYPE OF CLASSES/LECTURES AND THE NUMBER OF HOURS (organised classes/lectures and self-study)			
Type of studies: full-time		Type of studies: extramural	
- lectures	40	- lectures	
- Practical/laboratory	80	- classes	
- other tutored	55	-	
-		-	
-		-	
- Self-study	130	- Self-study	
Total number of hours:		305	Total number of hours:
OBJECTIVE OF COURSE/MODULE			
The aim of the course is to familiarize the functional anatomy and microstructure of the individual sections of the digestive system, range of specialized analyzes of animal feed components and biological materials, hygiene of feed, the principles feed parameters, technological processes used in the feed industry, the organization of production in a standard feed plant in the context of Polish feed law. Provide practical training on estimating the nutritional value of feed stuff, balancing feed compounds and feed rations using computer programs.			
TEACHING METHODS			
Lecture supported by multimedia presentation, laboratory and computer exercises, discussion, presentation of case studies by students, excursion, team oriented tasks, written assignments, ,			
LEARNING OUTCOMES		Reference to field outcomes	Reference to area outcomes
Knowledge	E1 - specifies the basic functional mechanisms forming the microstructure of digestive system sections, characterizes micro- and ultrastructure of organs and knows basic types of tissue building digestive apparatus and their functional microstructures in selected animal species E2 - has knowledge of the microbiological processes occurring in the gastrointestinal tract, animal-environment interactions and regulations applicable to the marketing of feed E3 - has knowledge of the theoretical basis of particular analytical methods and rules for sampling of biological materials E4 - has expertise on the current state of law relating to the quality and hygiene of feed and know the sources, causes and effects of contamination and compromising the hygienic quality of feed and rules for hazard monitoring E5 - have advanced knowledge concerning livestock feeding systems, technological processes used in the feed industry and their impact on the quality and nutritional value of mixed feed	Z2A_W03 Z2A_W05 Z2A_W08 Z2A_W09 Z2A_W10 Z2A_W11 Z2A_W14 Z2A_W16 InzA_W01 InzA_W02 InzA_W05	R2A_W01 R2A_W02 R2A_W03 R2A_W04 R2A_W05 R2A_W06 R2A_W07 R2A_W09

Skills	<p>E6- student has practical skills in terms of description and observation of histological sections using microscopy and can use the professional nomenclature in terms of anatomy and histology</p> <p>E7 - is able to describe the basic methods digestive system examination</p> <p>E8 plans and performs experiments in the field of microbial cultures</p> <p>E9 The student has the ability to estimate the real nutritional value feed based on modern self-executed chemical analyzes, optimizing the composition of the mixed feed and protein concentrates, use of computer programs, plan processes for the production of high quality feed, as well as plan and execute research tasks related to feed analyses, formulating the correct conclusions</p> <p>E10- Can present knowledge and communicate with various entities in verbal, written and graphical form</p>	<p>Z2A_U02 Z2A_U03 Z2A_U04 Z2A_U07 Z2A_U09 Z2A_U10 InzA_U01 InzA_U03 InzA_U05 InzA_U06 InzA_U08</p>	<p>R2A_U02 R2A_U03 R2A_U04 R2A_U05 R2A_U06 R2A_U07</p>
Social competences	<p>E11 - the student understands the need for continuous skills development of specialist in the field of professional skills, and long-life education, can inspire and organize the learning process of others</p> <p>E12 Students can organize the work of the people serving the animals, arrange a base feed for different species of animals, take measures for proper animal nutrition</p> <p>E13 is aware of the responsibility for the production of mixed feed and premixes of high quality and their distribution in accordance with the requirements of the Feed Law</p>	<p>Z2A_K01 Z2A_K03 Z2A_K04 Z2A_K05 Z2A_K06 Z2A_K09 InzA_K01</p>	<p>R2A_K01 R2A_K02 R2A_K03 R2A_K04 R2A_K05 R2A_K07</p>
Methods to verify learning outcomes		Outcome Reference Numbers	
TEACHING CONTENT			
<p>Lectures: Histology of subsequent sections of the digestive system; characteristics of rumen environment, evolution and taxonomy of rumen bacteria, fermentation processes taking place in the rumen, intestinal microbial systematics, biodiversity comparing endogenous microflora in poultry and pigs; Basic technological processes in the feed industry and their impact on the quality and nutritive value of mixtures; feed law; Biotechnology in the feed industry; machinery and equipment in the feed industry; basic principles of organization of production in feed mills; livestock feeding systems; Basic analytical techniques (quality of feed fat, the content of anti-nutritional factors, the analysis of the suitability of green fodder for silage, silage analysis); the legal basis for feed hygiene and nutrition of animals; testing rules active medicated feed their homogeneity and the principles of their manufacture; chemical, fungal, veterinary, microbiological hazards in feed, BSE problem; GMO in animal nutrition; the impact of technological processes on the hygienic quality of feed</p> <p>Practical: overview of the different tissue types in the organs of the digestive system; methods of analysis of biochemical parameters in the rumen ecosystem; methods for the isolation and identification of microorganisms; Determination of endogenous microflora of the digestive tract of chickens; characteristics of major groups of raw materials in animal nutrition; use of computer programs; optimizing the composition of mixed feed, protein concentrates and super-concentrates; laying a mixture of supplementary rules for its application; calculating the nutritional value of feed;</p>			
Forms and criteria for passing of course/module		Percentage of final mark	
LIST OF LITERATURE			
<ol style="list-style-type: none"> 1. The Rumen Microbial Ecosystem, Hobson P.N., Stewart C.S., Blackie Academic & Professional, 1997 2. Atlas of rumen microbiology Ogimoto K., Imagi S., Japan Scientific societies Press, Tokyo, 1981 3. Laboratory manual for classification and morphology of rumen ciliate protozoa Dehority B. A., CRC Press, 2000 4. The rumen protozoa Williams A. G. Coleman G. S., Brock Springer series in Contemporary Bioscience, 1991 5. Gastrointestinal Microbiology Mackie R. I., White B. A., Chapman and Hall Microbiology Series, volume 1 and 2, 1996 			