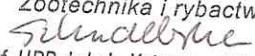


UCHWAŁA
Rady Naukowej Dyscypliny
Zootechnika i rybactwo
nr 04/01/2024
z dnia 26 stycznia 2024 r.

w sprawie: zatwierdzenia programu zajęć dla doktorantów ze Szkoły Doktorskiej.

Rada Naukowa Dyscypliny *Zootechnika i rybactwo* na posiedzeniu w dniu 26 stycznia 2024 roku, podjęła uchwałę o zatwierdzeniu programu zajęć dla doktorantów ze Szkoły Doktorskiej reprezentujących dyscyplinę zootechnika i rybactwo. Załącznik zawierający treść programu jest integralną częścią uchwały.

Przewodnicząca
Rady Naukowej Dyscypliny
Zootechnika i rybactwo

prof. UPP dr hab. Katarzyna Szkudelska

**Program zajęć dla doktorantów Szkoły Doktorskiej UP w Poznaniu
Dyscyplina zootechnika i rybactwo**

Założenia wspólne dla wszystkich dyscyplin w Szkole Doktorskiej UPP:

- program obowiązuje od semestru letniego roku akademickiego 2023/2024
- zajęcia prowadzone w języku angielskim
- maksymalnie 3 prowadzących przedmiot
- przedmiot obejmuje wykłady i zajęcia praktyczne (laboratorium, zajęcia terenowe)

rok	semestr	Liczba przedmiotów	Liczba godzin	Suma godzin	egzaminy
I	1	0	0	30	
	2	2 x12h Seminar	24 6		1
II	3	2 x12h	24	54	1
	4	2 x12h Seminar	24 6		1
III	5	2 x12h	24	54	1
	6	2 x12h Seminar	24 6		1
IV	7	2 x12h	24	42	1
	8	Tutorial 1x12 Seminar	12 6		
		12 + 4 seminars		180	6

Year/semester	Subject (12h) lectures (5h), workshops/lab classes (7h)	Head of the subject and the team of teachers	General content	Conditions of getting credit
I/2	Animal production part 1. Nutrition; environmental impact; welfare	prof. Adam Cieślak dr hab. Marcin Pszczoła dr Joanna Składanowska Baryza	<ul style="list-style-type: none"> • Nutritional and genetic methods limiting the negative impact of animal production on the environment • Methane measurement methods • Welfare as an important element of breeding • Current methods of animal welfare verification 	complete
I/2	Experiments and data analysis in Animal Sciences Experimental design; number of animals/samples/replicates; power test; data handling; statistical analyses	dr hab. Ewa Sell-Kubiak dr hab. Marcin Pszczoła	<ul style="list-style-type: none"> - data handling, - data visualization, - experimental design: number of animals/samples/replicates, research designs examples vs. observational study, power analysis. - principal statistical analyses/basics of hypothesis testing 	exam
I/2	Seminar			complete
II/3	Animal production part 2. Assisted reproduction; breeding programs; genomic selection	prof. Dorota Cieślak dr hab. prof. UPP Ewelina Warzych-Plejer dr hab. Marcin Pszczoła	<ul style="list-style-type: none"> • Assisted reproductive procedures implemented to animal breeding (ET, OPU); protocols, efficiency, extent of application, advantages over a standard reproduction; • Genomic selection in cattle breeding; key elements of the procedure, application to breeding programs, embryo selection; • Breeding programs; • rules regulating the use of animals in research 	complete
II/3	Animal models in scientific experiments.	dr hab. prof. UPP Katarzyna Szkudelska		exam

	Laboratory and farm animals; legal regulations; Local Ethics Committee (LKE)	prof. Tomasz Szkudelski	<ul style="list-style-type: none"> • conditions of keeping and rules for handling laboratory animals • purposes, types of studies, and principles of planning experiments using laboratory animals • research models of laboratory animals • <i>in vitro</i> methods developed based on lab animals' cells and tissues (examples of experiments) 	
II/3	Seminar			complete
II/4	Animal production part 3. Nutrition and its impact on health and reproduction, Metabolic disorders –dairy cows and pigs	prof. Włodzimierz Nowak dr hab. prof. UPP Małgorzata Kasprowicz- Potocka	<ul style="list-style-type: none"> • Evaluation of dairy cows' metabolic status, (blood and milk) • Dairy cattle metabolic disorders- ketosis, acidosis, hypocalcemia – diagnosis and prevention • How to improve reproduction in pigs? 	complete
II/4	Experimental methods in zootechnics and fisheries part 1. Animal feeding and digestion	dr hab. prof. UPP Małgorzata Kasprowicz-Potocka prof. Adam Cieślak dr hab. Sebastian Kaczmarek	<ul style="list-style-type: none"> • Review of current topics of nutritional research based on the - actual trends and methods (cows, poultry, pigs) (4 h) • Digestibility testing methods - nonruminants (indicator methods, differential methods, cannulated animals, principles of digesta and feces collection, freeze-drying, intestinal and total digestibility coefficients, apparent and true digestibility) and ruminants (in vitro, in sacco, cannulated animals) (4h) • Ruminants - physical methods of separating feces from urine, a classic method of determining digestibility; analysis of biological material and calculation of digestibility coefficients (labor 4h) (eventually practical - participation in slaughter and collection of biological material - if possible) 	exam
II/4	Seminar			complete

III/5	Animal production part 4. Aquaculture and fisheries; poultry	prof. Jan Mazurkiewicz dr hab. Marcin Hejdyś dr hab. Sebastian Kaczmarek	<ul style="list-style-type: none"> • Global aquaculture production systems and their impact on the environment and economics • Modern trends in experimental and sustainable aquaculture • The development and application of experimental designs in aquaculture • Knowledge and perception of aquaculture in science and society • Poultry production and their impact on the environment • Modern trends in experimental on poultry • The development and application of experimental designs in poultry • Biosecurity in poultry production 	complete
III/5	Experimental methods in zootechnics and fisheries part 2. Molecular genetics; biochemistry	dr hab. Zofia Madeja dr Tatiana Wojciechowicz dr hab. prof. UPP Marek Skrzypski	<ul style="list-style-type: none"> • Molecular Biology methods – DNA analysis: qualitative and quantitative PCR – introduction to real-time PCR analysis; • Biochemical methods of protein analysis: quantitative measurement of proteins (molecular analysis), protein extraction, quality and quantity evaluation (Western Blot). 	Exam
III/5	Seminar			complete
III/6	Food products of animal origin Factors affecting quality; methods for quality assessment;	prof. Piotr Ślósarz; dr hab. Agnieszka Ludwiczak dr Joanna Składanowska Baryza	<ul style="list-style-type: none"> • Modern methods used to assess the physicochemical quality of meat • Method verifying appropriate quality assessment methods depends on the type of raw material, post-mortem time, time, and research hypothesis. 	complete
III/6	Experimental methods in zootechnics and fisheries part 3. Histology; microbiology	prof. Hanna Jackowiak dr Ewelina Basińska dr hab. Bartosz Kierończyk	<ul style="list-style-type: none"> • The introduction to the preparation of biological and non-biological samples for analyses in light microscopy with special emphasis on 	Exam

			<p>histochemistry, immunohistochemistry, and autoradiography.</p> <ul style="list-style-type: none"> • The application of scanning and transmission electron microscopy methods for 2D and 3D visualization of microscopic structures in the histology of animal and plant samples • The microtomography in morphological studies • Collection of biological material from non-ruminant animals for microbiological analysis. • Commonly used field methods applied in microbial analysis. 		
III/6	Seminar				complete
IV/7	Functional food	<p>prof. Adam Cieślak Prof. Małgorzata Szumacher dr hab. Agnieszka Ludwiczak</p>	<ul style="list-style-type: none"> • The development of functional foods and their mechanism of action in humans • Methods of verifying factors influencing functional food • Functional food market Size, Share, Trends & Forecast 		complete
IV/7	Biostatistics and bioinformatics in data analysis	<p>dr Alicja Szabelska-Bereżewicz dr Joanna Zyprych-Walc</p>	<ul style="list-style-type: none"> • Introduction to Ensembl database • Introduction to data analysis tools with tidyverse ecosystem in R 		exam
IV/7	Seminar				complete
IV/8	Tutorial Renewable energy sources in the animal production sector	<p>Prof. Jacek Dach Prof. Wojciech Czekata</p>	<ul style="list-style-type: none"> - animal production and its impact on the environment - biogas from animal waste as the way of animal production decarbonization - best technological solution for animal farms 		complete
IV/8	Seminar				complete

W imieniu Komisji Dyscypliny zootechnika i rybactwo

D. Cieślak

Prof. Dorota Cieślak

Komisja Szkoły Doktorskiej UPP dyscypliny zootechnika i rybactwo

1. Prof. dr hab. Dorota Cieślak KGiPHZ – przewodnicząca zir+weterynaria
2. Prof. dr hab. Włodzimierz Nowak KZZ zir
3. Dr hab. Prof. UPP Jan Mazurkiewicz IZ PRSiA zir
4. Dr hab. Prof. UPP Marek Stanisław KHZIOS zir
5. Dr hab. Zofia Madeja KGiPHZ biotechnologia+zir
6. Dr hab. Ewa Pruszyńska-Oszmałek KFBiBZ zir+weterynaria
7. Dr hab. Robert Mikufa KZZ zir
8. Dr hab. Oskar Wasielewski KZ n. biol+zir