

Module of classes:

Biotechniques in animal reproduction

Wymiar ECTS	5
Module status	<i>Obligatory</i>
Form of final credit	<i>Exam</i>
Prerequisites	<i>Prerequisites knowledge and skills in biology of animal reproduction</i>

Field of study:

ANIMAL SCIENCE

Education profile	<i>General-academic</i>
The code of the form of study and the level of education	<i>master of thesis</i>
Semester of study	<i>winter</i>
Language of education	<i>English</i>

The leading faculty and the lecturer of the module:

The name of the unit running the module	<i>Department of Animal Reproduction, Anatomy and Genomics</i>
Module coordinator	<i>dr inż. Joanna Kochan</i>

Learning outcomes:

Symbol of the effect	Effect description	Relation to	
		field effect	discipline

KNOWLEDGE – the graduate knows and/or understands:

BIOT_W01	methods of genetic engineering and molecular diagnostics and methods of their application in animal breeding; the basic concepts of conservation of genetic resources	ZOO1_W03	RZ
BIOT_W02	in a deep degree knowledge about bioengineering of animals and the impact of xenobiotics and environmental factors on animal reproduction and development; the scope of research methods used in the diagnosis of the reproductive system	ZOO1_W04	RZ

SKILLS – the graduate can:

BIOT_U01	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	ZOO1_U02	RZ
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SOCIAL COMPETENCE. The graduate is ready to:

BIOT_K01	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	ZOO1_K05	RZ
BIOT_K02	think and act in an entrepreneurial manner on issues that aim to apply animal science knowledge in his professional work.	ZOO1_K07	RZ

Course content:

Lectures:	15 h
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Subjects of classes	Development of biotechnology methods of reproduction- perspectives and limitations Methods of collection and in vitro maturation of oocytes In vitro fertilization Embryo transfer Cloning of mammals Chimeras and hybrids Cryopreservation of oocytes and embryos
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Classes	30 godz.
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Subjects of classes	Computer assisted sperm analysis (CASA) 2h
	Methods of sperm preservation 2h
	Methods of collection and in vitro maturation of oocytes 3h
	Methods of in vitro fertilization (IVF, ICSI, IMSI) 3h
	Embryo transfer techniques 2h
	In vitro embryo culture 2h
	Methods of embryos evaluation 2h
	Cryopreservation of oocytes and embryos 2h
	Micromanipulation of gametes and embryos 2h
	Assisted reproduction techniques in programs of animal conservation 2h
Mono- and diparental embryos 2h	
Using of animal models in embryology 2h	
Stem cells in animal reproduction 2h	
Ethical aspects in embryology 2h	
Realized learning outcomes	BIOT_W01-W02; BIOT_U01, BIOT_K01 – K03
Verification methods and criteria of effects evaluation	Exam in the form of written test. A positive grade should be correctly answered. 60%

Literature:

Basic	1. <i>Biotechnology in animal reproduction. Senecia et al. 2012</i>
Supplementary	<i>Supplementary 1. Biotechnology in equine reproduction: Prospects and limitations Kochan J., Nowak A, et al; Med Wet.2016, 226-230</i>
	2. <i>Selected methods of in vitro embryo production in felids - a review. Prochowska S., ; Nizanski W., Partyka A., Kochan J. Anim. Sci P.Rep. 2017, 361-377.</i>

Structure of learning outcomes:

Discipline – animal husbandry and fishery (RZ)	5	ECTS*
Discipline	0	ECTS*

Structure of learning outcomes:

Area of education: animal sciences	5	ECTS*
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Student activity structure:

classes carried out with direct participation of the teacher	63	h	2,5	ECTS*
including:				
lectures	15	h		
classes and seminars	30	h		
consultations	13	h		
participation in research	0	h		
mandatory practices and internships	0	h		
participation in the exam and credits	5	h		
Own work	62		2,5	ECTS*

* - Podawane z dokładnością do 0,1 ECTS, gdzie 1 ECTS = 25-30 godz. zajęć

SL - stacjonarne, licencjackie; SI - stacjonarne, inżynierskie; SM - stacjonarne magisterskie; NI - niestacjonarne, inżynierskie; NM - niestacjonarne magisterskie

kod dyscypliny: RZ - zootechnika i rybactwo, PB - nauki biologiczne