

Module of classes:

**REPRODUCTION IN BIRDS**

ECTS	2
Status	complementary
Form of final credit	credit
Prerequisites	example: Knowledge in the field of basics of physiology and anatomy of birds.

**Field of study:**

**ANIMAL SCIENCE**

Profile of study	General-academic
The code of the form of study and the level of study	master of thesis
Semester of study	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 Reproduction, Anatomy and Genomics
Course coordinator	DSc Małgorzata Gumulka (malgorzata.gumulka@urk.edu.pl)

**Learning outcomes of the module/subject**

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

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

RB_W1	Knows the principles of breeding flocks of various species of birds.	ZOO2_W06	RZ
RB_W2	Describes the breeding behavior, seasonality of the need to follow it when planning reproduction.	ZOO2_W06	RZ
RB_W3	Knows the specifics of reproduction of birds associated with sperm storage.	ZOO2_W06	RZ
RB_W4	Knows and characterizes environmental and productive factors affecting reproductive performance in birds.	ZOO2_W06	RZ

**SKILLS – the student can:**

RB_U1	He can plan and organize reproduction of birds under condition of natural mating and artificial insemination	ZOO2_U03	RZ
RB_U2	Can collect semen from birds and conduct a sperm penetration test	ZOO2_U02	RZ
RB_U3	Can analyze reproductive behavior of birds	ZOO2_U04 ZOO2_U10	RZ

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

RB_K1	He knows the scope of his knowledge and skills. Demonstrates the need to further expand knowledge.	ZOO2_K01	RZ
RB_K2	Sees the relationship between well-being and reproductive performance.	ZOO2_K06	RZ
RB_K3	Creative in organizing bird reproduction.	ZOO2_K07	RZ

**Teaching content:**

<b>Lectures</b>	<b>10</b>	<b>hours</b>
Subjects of lectures	1. Avian male and female reproductive organs. Avian eggs. 2. Reproductive behavior of birds 3. Avian seasonal reproduction 4. Laying pattern of poultry	

5. Sperm storage in the female reproductive tract
6. Fertilization. Sperm-egg interaction.
7. Artificial insemination as an assisted reproduction technique in birds
8. Poultry reproduction in intensive production conditions
9. Broodiness and broody control

Realized learning outcomes	<i>RB_W1, RB_W2, RB_W3, RB_W4, RB_K1, RB_K2, RB_K3</i>
Verification methods and criteria of effects evaluation	<i>together with participation in the final evaluation</i>
<b>Classes (laboratories, field exercises, auditorium exercises etc. ...)</b>	<b>5 hours</b>
Subjects of the classes	<ol style="list-style-type: none"> <li>1. Observations of reproduction behavior of birds</li> <li>2. Semen collection, evaluation and artificial insemination</li> <li>3. Sperm penetration assay in vivo</li> <li>4. Sex determination of domestic birds: sexing day- old chicks.</li> </ol>
Realized learning outcomes	<i>RB_U1, RB_U2, RB_U3, RB_K1, RB_K2, RB_K3</i>
Verification methods and criteria of effects evaluation	<i>together with participation in the final evaluation</i>
Verification methods and criteria of effects evaluation	<i>presentation on bird reproduction or passing the test</i>

#### Literature:

Basic	<ol style="list-style-type: none"> <li>1. Sasanami T. <i>Avian Reproduction From Behavior to Molecule</i>. Springer. 2017</li> <li>2. Hocking P. M. <i>Biology of breeding poultry</i>. <i>Poult. Sci. Symp. Ser. CAB Inter.</i> 2009.</li> <li>3. Etches R. <i>Reproduction in Poultry</i>. CABI, Oxford</li> </ol>
Supplementary	<ol style="list-style-type: none"> <li>1. Gumulka M., Rozenboim I. 2013. <i>Mating activity of domestic geese ganders (Anser anser f. domesticus) during breeding period in relation to age, testosterone and thyroid hormones</i>. <i>Animal Reproduction Science</i>, 142: 183– 190.</li> <li>2. Gumulka M., Rozenboim I. 2015. <i>Breeding period – associated changes in semen quality, concentrations of LH, PRL, gonadal steroid and thyroid hormones in domestic goose ganders (Anser anser f. domesticus)</i>. <i>Animal Reproduction Science</i>, 154: 166- 175.</li> <li>3.1. Avital-Cohen N., Heiblum R., Rosenstrauch A., Chaiseha Y., Mobarkey N., Gumulka M., Rozenboim I. 2015. <i>Role of the serotonergic axis in the reproductive failure associated with aging broiler breeder roosters</i>. <i>Domestic Animal Endocrinology</i>, 53: 42- 51.</li> </ol>

#### Structure of learning outcomes:

Dyscipline – animal husbandry and fishery (RZ)	2	ECTS*
Dyscipline –...	...	ECTS*

#### Structure of student's activities:

classes carried out with direct participation of the teacher	25	hours	1	ECTS*
including:				
lectures	10	hours		
classes and seminars	5	hours		
consultations	7	hours		
participation in research	0	hours		
mandatory practices and internships	0	hours		
participation in the exam and credits	3	hours		
classes carried out with the use of e-learning	0	hours	0	ECTS*
student's own work	25	hours	1	ECTS*

) \* - 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