Course code: ……. **Plan position:** ……

1. INFORMATION ABOUT THE COURSE

A. Basic information

Name of course	Genetically modified products
Field of studies	
Level of studies	
Profile of studies	
Form of studies	
Specialty	
Unit responsible for the field of studies	Faculty of Animal Breeding and Biology, Department of Animal Biotechnology and Genetics
Name and academic degree of teacher(s)	Michalina Jawor PhD, Elżbieta Pietrzak PhD
Introductory courses	
Introductory requirements	

B. Semester/week schedule of classes

Semester	Lectures (W)	Auditorium classes (Ć)	Laboratory classes (L)	Project classes (P)	Seminar (S)	Field classes (T)	Number of ECTS points
Winter / summer	10		15				5

2. LEARNING OUTCOME

No.	Learning outcomes description	The reference to the learning outcomes of specific field of study	The reference to the learning outcomes for the area
KNOWLEDGE			
W1	Student has knowledge in the field of genetics allowing for understanding the content of major and speciality subjects		
W2	Student has knowledge of the use of biotechnology in animal production		
SKILLS			
U1	Student can apply appropriate analytical methods and devices to assess the risk of threats to animal and human health and use the results of research laboratory tests to ensure food safety, feed and animal health		
U2	Student is able to work in a team, cooperate and perform entrusted tasks in compliance with the regulations of health and safety		
SOCIAL COMPETENCES			

K1	Student is ready to use theoretical knowledge at professional work		
K2	Student is ready for continuous training in the field of ensuring the safety of the food chain		

3. TEACHING METHODS

Lecture, Laboratory classes

4. METHODS OF EXAMINATION

Test

5. SCOPE

Lectures	Genetic modifications of plants and animals. Creation of genetically modified organisms. GMO product content monitoring. The global market of GMO products.
Laboratories	Creating bacterial vectors. Methods of creating transgenic organisms. Production of genetically modified organisms. DNA and RNA extraction of GMO products of plant and animal origin. Quantitative and qualitative assessment to detect genetically modified products. Methods of detecting GMOs in food.

6. METHODS OF VERIFICATION OF LEARNING OUTCOMES

LEARNING OUTCOME	Form of assessment					
	Oral examination	Written exam	Colloquium	Project	Presentation	……
W1			x			
W2			x			
U1			x			
U2			x			
K1			x			
K2			x			

7. LITERATURE

Basic literature	1. Liang, G. H. (2004). *Genetically modified crops: their development, uses, and risks*. CRC Press. 2. Kapuscinski, A. R. (2007). *Environmental risk assessment of genetically modified organisms* (Vol. 3). CABI. 3. Halford, N. G. (2012). *Genetically modified crops*. World Scientific. 4. Kishor, P. K., Rajam, M. V., & Pullaiah, T. (Eds.). (2021). *Genetically Modified Crops: Current Status, Prospects and Challenges Volume 1*. Springer Singapore.
Supplementary literature	

8. TOTAL STUDENT WORKLOAD REQUIRED TO ACHIEVE EXPECTED LEARNING OUTCOMES EXPRESSED IN TIME AND ECTS CREDITS

Student's activity		Student workload– number of hours
Classes conducted under a direct supervision of an	Participation in classes indicated in point 1B	25
	Supervision hours	5

academic teacher or other persons responsible for classes		
Student's own work	Preparation for classes	30
	Reading assignments	40
	Other (preparation for exams, tests, carrying out a project etc)	25
Total student workload		125
	Number of ECTS points	5