Environmentally friendly agriculture

Educational subject description sheet

Basic information

Field of study Environmental Protection and Management **Speciality** - **Department** Faculty of Biology **Study level** second cycle **Study form** full-time degree programme **Education profile** General academic **Mandatory** obligatory	**Education cycle** 2021/22 **Subject code** UJ.WBIEPMS.220.5cac67bb788e7.21 **Lecture languages** English **Disciplines** Biological sciences **ISCED classification** 0511 Biology **USOS code**

Subject coordinator	Paulina Kramarz
Lecturer	Paulina Kramarz

Period Semester 2	**Examination** exam **Activities and hours** lecture: 6, classes: 6, conversatory classes: 10, field classes: 8	**Number of ECTS points** 2.0

Goals

C1	Elucidating methods currently applied in agriculture and animals breeding. Explanation of negative effects of excessive chemicalisation of agriculture and industrial animals breeding confronted with global climate changes and mass extinction of species. Discussion on future of agriculture based on methods which minimizing negative effects of food production on natural environment.

Subject's learning outcomes

Code	Outcomes in terms of	Effects	Examination methods
Knowledge – Student knows and understands:			
W1	Student understands significance of agricultural methods in natural environment in the past and nowadays; natural resources of agricultural areas; risk assessment of agricultural methods; application of genetically modified crops; application of green technologies and biological control of crops. Student understand an influence of food production on global climate changes and mass extinction of species.	EPM_K2_W01, EPM_K2_W04, EPM_K2_W09	written exam, report, presentation, credit
Skills – Student can:			
U1	Student is able to explain how agricultural methods should be modified to minimize their negative effects on natural environment. Ability to provide solutions alternative to chemical methods.	EPM_K2_U02, EPM_K2_U03, EPM_K2_U04, EPM_K2_U05, EPM_K2_U06, EPM_K2_U11	written exam, report, presentation, credit
Social competences – Student is ready to:			
K1	Student is a responsible consumer of agriculture products and possess skills and knowledge to convince of need for change in agricultural methods to improve quality of human life and decrease negative impact on natural environment.	EPM_K2_K01, EPM_K2_K02, EPM_K2_K06	written exam, report, presentation, credit

Calculation of ECTS points

Activity form	Activity hours*
lecture	6
classes	6
conversatory classes	10
field classes	8
data analysis and preparation	5
report preparation	5
konsultacje	2
preparation of a multimedia presentation	8
preparation for the exam	8
participation in an exam	2

Student workload	Hours 60	ECTS 2.0
Workload involving teacher	Hours 30	ECTS 1.0
Practical workload	Hours 8	ECTS 0.3

* hour means 45 minutes

Study content

No.	Course content	Subject's learning outcomes
1.	Lectures: Review on methods applied in agriculture in the past and nowadays. Comparison of the most common applied methods with modern which minimize negative effects on environment and human health. Methods of increasing biodiversity of agricultural areas. For and against applying genetically modified crops. Application of green technology and biological control as alternatives to pesticides, chemical fertilizers and control of stored products. Influence of different methods of food production on global climate change and mass extinction of species.	W1, U1
2.	Conversational lectures: Comparison of conventional and modern methods applied in agriculture to discuss long-term impact of food production on natural environment and human health.	W1, U1, K1
3.	Laboratory classes: Methods applied in biological control and green technology.	W1, U1, K1
4.	Excursion: Visit in modern farm where methods minimizing negative effects of food production are applied.	W1, U1

Course advanced

Teaching methods:

lecture, conversation lecture, discussion, laboratories, konsultacje, zajęcia terenowe

Activities	Examination methods	Credit conditions
lecture	written exam	Open questions will concern understanding of benefits from application in agriculture environmentally friendly methods. Ability of critical analyses of asked issues on the basis of scientific facts as well as clarity of the answers will be evaluated.
classes	report	Evaluation of report from laboratory classes which will be a short experiments on effectiveness of methods applied in biological control and green technology. Report will be prepared in a form of scientific publications according to rules of scientific journals. Correctness of references, applied statistical analyses and discussion of obtained results will be evaluated.
conversatory classes	presentation	Evaluation of presentations on comparison of conventional and modern methods applied in agriculture to discuss long-term impact of food production on natural environment and human health. Because presentations will be prepared in small groups (two-three students) evaluated will be not only factual content but also coherence of the presentation resulting from cooperation.
field classes	credit	attendance

Entry requirements

knowledge of English language

Literature

Obligatory

1. Lectures and scientific articles from bases of scientific journals

Effects

Code	Content
EPM_K2_W01	The graduate knows and understands complexity of natural phenomena and processes and their impact on nature and environment
EPM_K2_W04	The graduate knows and understands contemporary problems of natural environment and is able to point out new threats
EPM_K2_W09	The graduate knows and understands new trends and change directions in environment protection and in management of natural resources
EPM_K2_U02	The graduate is able to use appropriate statistical tools and software to collect and interpret data
EPM_K2_U03	The graduate is able to use specialist knowledge necessary to interpret collected empirical data and to draw appropriate conclusions
EPM_K2_U04	The graduate is able to prepare public presentations related to environment and nature protection using various techniques of verbal and multimedia communication
EPM_K2_U05	The graduate is able to write a text on environment protection issues presenting his/her own research and describe the results of his/her professional evaluations and environmental analyses
EPM_K2_U06	The graduate is able to search for, select an use necessary information found in various English language sources
EPM_K2_U11	The graduate is able to continuously acquire knowledge and raise his/her qualifications, inspire and help others, set and achieve career objectives
EPM_K2_K01	The graduate is able to critically appraise acquired information, use reliable and well-established sources of scientific information and draw appropriate conclusions when settling practical problems
EPM_K2_K02	The graduate is able to lead discussion and present scientific arguments related to environment protection and nature
EPM_K2_K06	The graduate is able to pursue team work while assuming different roles and also is able to plan the work in terms of sharing responsibilities and managing time