Course name:
Flora of brown fields

ECTS	3
Course status	*facultative*
Course final assessment /evaluation of outcomes	The grade based on Student's work
Prerequisite	*basic principles of Botany or Plant Biology*

Main field of study*:*
Agriculture and Horticulture, Biology and Biotechnology (Erasmus+)

Educational profile	General academic
Code of studies and education level	bachelor/engineer (SI) or master of science (SM)
Semester of studies	Summer or winter
Language of instruction	English

Course offered by:

Name of faculty offering the course	Faculty of Biotechnology and Horticulture
Name of department offering the course	Department of Botany, Physiology and Plant Protection
Course coordinator	Dr. Sc. Ewa Hanus-Fajerska

Learning outcomes:

Symbol of outcome	Description of the learning outcome	Reference to main field of study outcomes	Area symbol*
KNOWLEDGE – student knows and understands			
FBF_W1, F	Reasons for generating brown fields and the impact of various substances of natural and anthropogenic origin on the dynamics of floristic changes in specific habitats	EPB2_W03	R, P
FBF_W2	Biological features characterizing taxa with different taxonomic origin that directly affect the floristic biodiversity of waste management areas	EPB2_W05	R, P
FBF_W3	The need for proper management of intellectual property resources in order to counteract adverse floristic changes in nature	EPB2_W07	R
SKILLS – student is able to			
FBF_U1	Communicate in verbal and written English form in the field of botanical environmental research	EPB2_U01	R, P
FBF_U2	Make effective use of online databases, search engines of scientific publications and other sources of information	EPB2_U03	R, P
FBF_U3	Independently and comprehensively analyze the problems of contemporary topics related to the flora of areas subjected to strong anthropopressure	EPB2_U05	R, P
SOCIAL COMPETENCIES – student is ready to:			
FBF_K1	Constant learning and raising one's professional competence in the area of knowledge about the studied subject	EPB2_K01	R, P

FBF_K2	Individual and team work, taking on different roles and respecting own and other work	EPB2_K02	P, P
FBF_K3	Taking responsibility for shaping and condition of the natural environment	EPB2_K04	R, P

Teaching contents

Lectures	. 15 hours
Topics	Reasons for generating "brown fields", an outline of modern floristic studies conducted in areas subjected to strong anthropopressure and the possibility of their interpretation to counteract adverse floristic changes in nature Comprehensive botanical characteristics of plant material adapted to extremely disturbed habitats of post-industrial areas Floristic diversity of different types of degraded areas
Accomplished learning outcomes	*FBF_W1, FBF_W3, FBF_U1, FBP_K1, FBF_K3*
Means of verification, rules and criteria of assessment	verification in the form of discussions during field exercises and in the form of a report, 50% participation in the final course completion
Field classes:	……. 15 hours
Topics	The purpose of the field classes is the possibility for students to self-conduct an analysis of specific stands in areas of the Krakow district which are diversified in terms of anthropopressure
Accomplished learning outcomes	
Means of verification, rules and criteria of assessment	

References:

Basic	*Hanus-Fajerska E., Ciarkowska E., Muszyńska E. 2019. Long-term field study on stabilization of contaminated wastes by growing clonally reproduced Silene vulgaris calamine ecotype. Plant and soil 439:341-445. https://doi.org/10.1007/s11104-019-3 max* *Mathey J., Arndt T., Banse J., Rink D. 2018. Public perception of spontaneous vegetation of brownfields in urban areas-Results from surveys in Dresden and Leipzig (Germany). Urban Forestry and urban Greening 29: 384-392. https://doi.org/10.1016/j.ufug.2016.10.007* *Koch F., Bilke L., Helbig C., Schlink, U. 2018. Compact or cool? The impact of brownfield redevelopment on inner-city micro climate. Sustainable Cities and Society 38: 31-41. htts://doi.org/10.1016/j.scs.2017.11.021*
Supplementary	*Woźniak G. 2010. Diversity of vegetation on coal-mine heaps of the Upper Silesia (Poland). Copyright W. Szafer Institute of Botany, Polish Academy of Sciences (English summary)* *Pypeć M., Hanus-Fajerska E. 2010. Economically efficient ecological methods of postindustrial areas management. Adv. Agric. Sci. 551: 305-311 (English Summary)*

Structure of learning outcomes

Area of academic study: R – Agricultural, forestry and veterinary sciences	1.6 ECTS **
Area of academic study: T – technological sciences	1.4 ECTS**

Structure of student activity

Contact hours		40	hrs.	1.6	ECTS**
Including:	lectures	15	hrs.		
	classes and seminars	15	hrs.		
	consultations	5	hrs.		
	participation in research	…	hrs.		
	obligatory traineeships	5	hrs.		
	participation in examination	…	hrs.		
e-learning		…	hrs.	….	ECTS**
student own work		35	hrs.	1.4	ECTS**

*Areas of academic study in the fields of: H- humanities; S - social studies; P – biological sciences; T – technological sciences; M- medical, sport and health sciences; R – Agricultural, forestry and veterinary sciences; A – the arts
** stated with an accuracy to 0.1 ECTS, where 1 ECTS = 25 - 30 hours of classes