Course name:
INVASION ECOLOGY

ECTS	**4**
Course status	**complementary**
Course final assessement/evaluation of outcomes	**exam / credit / credit unrated**
Prerequisites	**example: passing the subject ECOLOGY**

Main field of study:
field of study name (capital letters)

Profile of study	**General-academic**
The code of studies (education level)	**SI/SM (bachelor/master)**
Semester of studies	**winter / summer**
Language of instruction	**English**

Course offered by:

Name of faculty offering the course	**Faculty of Forestry**
Name of department offering the course	**Department of Forest Biodiversity**
Course coordinator	**dr hab. inż. Anna Gazda, prof. URK**

Learning outcomes of the course:

Symbol of outcome	Description of learning outcome	Reference to	
		main field of study outcomes	discipline
KNOWLEDGE – student knows and/or understands:			
PPP_IE_W01	invasive species and habitats that are particularly vulnerable to invasion	*LES2_W01*	RL
PPP_IE_W02	invasion processes and can describe them.	*LES2_W02* *LES2_W07*	RL
PPP_IE_W03	the processes that can affect biodiversity; and can validate the effectiveness of invasive species monitoring activities and the principles for managing the populations.	*LES2_W03* *LES2_W04*	RL
SKILLS – student is able to:			
PPP_IE_U1	to search for, analyse and interpret information on invasion processes	*LES2_U06* *LES2_U08*	RL
PPP_IE_U2	design studies that are part of environmental monitoring in order to detect and/or assess the threat to biodiversity by invasion processes that have been set in motion	*LES2_U01* *LES2_U02* *LES2_U05* *LES2_U07*	RL
PPP_IE_U3	interpret legislation rules in Poland and the EU on invasive species	*LES2_U06* *LES2_U08*	RL
SOCIAL COMPETENCE- student is ready to:			
PPP_IE_K1	develop and self-improve within the scope of their profession, and understand the need for lifelong learning; they are able to inspire and organise the learning process of others	*LES2_K01*	RL
PPP_IE_K2	is able to appropriately determine priorities for the performance of tasks, works independently and is able to manage a team in accordance with the personal competences of individual members of the team	*LES2_K02*	RL
PPP_IE_K3	is aware of the risk of action taken and of social, professional and ethical responsibility for shaping and maintaining the natural environment	*LES2_K03*	RL

Teaching contents:

Lectures		**30**	**hours**
Topics of the lectures	1. An introduction to invasion ecology. 2. What makes species invasive? 3. Invasion processes/stages. 4. Plant communities' vulnerability to invasion. 5. How effective is resistance of natural and managed communities to invasion? 6. Vectors of invasion: past, present and future 7. Sampling design and data collection in monitoring of invasion. 8. Risk analysis for alien/invasive organisms in terestrial ecosystems 9. Ecological impacts of invasive species 10. Control of invasive species 11. Invasive species management: an animal ethics perspective 12. Citizen Scientists' Role in Invasive Alien Species Mapping and Management 13. Increasing understanding of invasive alien species through citizen science 14. The role of practical guides for Citizen Science project initiators. 15. EU Regulation on Invasive Alien Species		
Accomplished learning outcomes	*symbol of learning outcomes for the classes LES2_W013, LES2_W02, LES2_W03, LES2*		
Verification methods, rules and criteria of outcome assessment	*Single-choice test (minimum 50% correct answers to pass the exam); the proportion of the lecture pass mark in the final mark is 50%.*		

Classes		**30**	**hours**
Topics of the classes and field trips	1. Data: management & standards; Analysis & visualisation, 2. Tracking Invasive Alien Species in Europe with a mobile app 3. Colonisation dynamics of invasive plants 4. A comparison of biology and ecology of native and invasive plant species 5. Species richness: Alien vs. Native species		
Accomplished learning outcomes	*symbols of learning outcomes for lectures: LES2_U 1-2, LES2_U5-8, LES2_W10*		
Verification methods, rules and criteria of outcome assessment	*demonstration of practical skills.* *The contribution of the pass mark for the design exercises to the final mark is 50%.*		

Seminars		**…**	**hours**
Topics of the seminars			
Accomplished learning outcomes	*symbol of learning outcomesof the seminars*		
Verification methods, rules and criteria of outcome assessment	*together with participation in the final asessement (in %)*		

References:

Basic	*Davis M. 2009. Invasion Biology. OUP.* *Richardson, D.M. (ed.) 2011. Fifty years of invasion ecology. The legacy of Charles Elton. Wiley-Blackwell, Oxford.* *Sakai A. K., Allendorf F. W., Holt J. S., Lodge D. M., Molofsky J., With K. A., Baughman S., Cabin R. J., Cohen J. E., Ellstrand N. C., McCauley D. E., O'Neil P., Parker I. M., Thompson J. N., Weller S. G. 2001. The population biology of invasive species – Annu. Rev. Ecol. Syst. 32: 305−332.*

Supplementary	*Elton, C.S. 1958: The ecology of invasions by animals and plants. London: Methuen* *Alien CSI (2023). Using citizen science with alien species: a practical guide for project initiators. Available under Creative Commons Zero Universal licence at https://doi.org/10.5281/zenodo.7521429*

Structure of learning outcomes:

Discipline: # (*provide appripriate symbol*) RL				*4*	ECTS**
Discipline: # (*provide appripriate symbol - if the course relates to more than one academic discipline*)				…	ECTS**
Structure of student activities:					
Contact hours		80	hours	3,2	ECTS**
including:	lectures	30	hours		
	classes and seminars	30	hours		
	consultations	15	hours		
	participation in research	…	hours		
	mandatory trainerships	…	hours		
	participation in examinations	5	hours		
e-learning		…	hours	…	ECTS**
student own work		20	hours	0,8	ECTS**

Syllabus valid from the academic year 2021/2022

*** where 10 hours of classes = 1 ECTC (in case of 15 h → 2 ECTS)**

** stated with an accuracy to 0.1 ECTS, where 1 ECTS = 25 - 30 hours of classes

academic discipline code: RZ - animal science and fishery, PB - biological sciences, etc.