

<b>1. Field of study</b>	<b>Biology</b>
2. Faculty	Faculty of Natural Sciences
3. Academic year of entry	2020/2021 (winter term)
4. Level of qualifications/degree	second-cycle studies
5. Degree profile	general academic
6. Mode of study	full-time

**Module:** Methods in ecophysiological research

**Module code:** 2BL\_160a

**1. Number of the ECTS credits:** 2

<b>2. Learning outcomes of the module</b>			
<b>code</b>	<b>description</b>	<b>learning outcomes of the programme</b>	<b>level of competence (scale 1-5)</b>
2BL_160_1	Can define the basic concepts of bioindication, plants ecophysiological indicators as well as their use in environmental quality studies.	2BL_W01_P 2BL_W07_P	5 5
2BL_160_2	possess knowledge about the impact of environmental pollution on the physiological responses of plants.	2BL_U03_P 2BL_W07_P	5 5
2BL_160_3	Student can plan and analyze selected ecophysiological indicators using knowledge and skills in the field of scientific literature, including English one.	2BL_K01_P 2BL_U03_P 2BL_U05_P 2BL_W04_P	5 5 5 5
2BL_160_4	Student can prepare a report on the used methods; shapes an environmentally friendly attitude towards the threats arising from environmental pollution.	2BL_K03_P 2BL_U03_P 2BL_W04_P	5 5 5

### **3. Module description**

<b>Description</b>	The aim of the module is broaden the students' knowledge on the methods in plant ecophysiological research. Students learn different methods of heavy metals analyse in soil and plants with special emphasis on appropriate sample collection. Students are acquainted with the assessment methods of selected metabolites, involved in plant defense response towards heavy metals (eq. chlorophylls, anthocyanins, proline, antioxidant enzymes). Students focus on the application of above-mentioned ecophysiological parameters and the environmental indices such as pollution index, translocation factor, bioconcentration factor, enrichment factor, chemical fingerprints of their own selected plants elements estimation.
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<b>Prerequisites</b>	General knowledge in ecology, biochemistry and plant physiology.
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#### 4. Assessment of the learning outcomes of the module

code	type	description	learning outcomes of the module
2BL_160_w_1	credit	according to the rules set out in the syllabus	2BL_160_1, 2BL_160_2, 2BL_160_3, 2BL_160_4

#### 5. Forms of teaching

code	form of teaching			required hours of student's own work		assessment of the learning outcomes of the module
	type	description (including teaching methods)	number of hours	description	number of hours	
2BL_160_fs_1	laboratory classes	Experiments will be performed in small groups under the supervision of the instructors and will include: • Designing and accomplishing the procedure • Calculating and presenting the results • Protocols commitment and presentation	30	Self acquisition of knowledge based on literature, www pages conected with ecophysiological reseach, verification of content discussed during laboratory classes, review of teaching materials.	20	2BL_160_w_1