

Karta opisu zajęć (syllabus)

Nazwa kierunku studiów	Environment protection
Nazwa modułu, także nazwa w języku angielskim	Water resources management
Język wykładowy	English
Rodzaj modułu	obligatory
Poziom studiów	Master`s
Forma studiów	stational
Rok studiów dla kierunku	I
Semestr dla kierunku	1
Liczba punktów ECTS z podziałem na kontaktowe/niekontaktowe	4 (2,12/1,88)
Tytuł naukowy/stoień naukowy, imię i nazwisko osoby odpowiedzialnej za moduł	Dr hab. prof. Monika Takowska-Kukuryk
Jednostka oferująca moduł	Department of Hydrobiology and Protection of Ecosystems
Cel modułu	To acquaint students with anthropogenic sources of pollution of aquatic ecosystems, including disturbances in the water balance due to climate change, methods of diagnosing the ecological status of surface waters, methods of passive and active protection of water and water resources, and restoration activities.
Efekty uczenia się dla modułu to opis zasobu wiedzy, umiejętności i kompetencji społecznych, które student osiągnie po zrealizowaniu zajęć.	Knowledge:
	W1. Student has an extended knowledge of trophic interactions in aquatic ecosystems and their communities.
	W2. Student knows the main threats to aquatic environments, determines their causes and effects, and presents possible ways to counteract them.
	Skills:
	U1. Student is able to analyze the sources of threats to the balance of aquatic ecosystems
	Social competences:
K1. Student understands what benefit or loss a given entity (human, animal, plant) suffers as a result of a change in the quality of aquatic environments	
Wymagania wstępne i dodatkowe	Completed modules in hydrology and hydrobiology
Treści programowe modułu	Water resources of Poland and Europe. Water consumption and use in Poland and in the world. Climatic water balance, water footprint – definition and types. Water in the household. Water management in cities. Types of anthropogenic impact on aquatic ecosystems (water abstraction, retention, drainage, hydrotechnical development, floods). Renaturalization and revitalization of water, basic concepts, assumptions, examples.
Wykaz literatury podstawowej i uzupełniającej	Basic literature:

	<ol style="list-style-type: none"> 1. Chełmicki W. 2001. Water. Resources, degradation, protection. PWN Warsaw. 2. Mikulski Z. 1998. Water management. PWN, Warsaw. 3. https://www.wody.gov.pl/ <p>Supplementary literature:</p> <ol style="list-style-type: none"> 1. Directive 2000/60 / EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water Policy 2. Van Andel J., Aronson J. 2006. Restoration Ecology: the new frontier. Blackwell Publishing.
Planowane formy/działania/metody dydaktyczne	Lecture, discussion, accounting exercises, oral presentations, field classes
Sposoby weryfikacji oraz formy dokumentowania osiągniętych efektów uczenia się	<p><u>Verification methods:</u> W1, W2 - two written tests in the form of open questions (definitions to be explained, solving tasks), oral presentation, written exam (single-choice test). Obtaining the appropriate percentage of the sum of points assessing the level of required knowledge/skills: 2.0 < 51% 3.0 - 51-60% 3.5 - 61-70% 4.0 - 71-80% 4.5 - 81-90% 5.0 > 91-100%</p> <p>U1 – oral presentation, tests K1 – participation in discussion, written test; group and individual work</p> <p><u>Documenting achieved learning outcomes staged work:</u> partial tests/elements of projects/description of tasks performed during classes, etc. final work: exam, project, presentation archived in digital form</p>
Elementy i wagi mające wpływ na ocenę końcową	Final grade = 50% arithmetic mean of the grades obtained during classes (test grades and activity grades - group/individual work, presentation grades, project grades) + 50% exam grade. These conditions are presented in the first lesson of the module.
Bilans punktów ECTS	<p>Contact lectures (15 godz./0,6 ECTS), classes (25 godz./1,0 ECTS), calculating household water consumption (4 godz./0,16 ECTS) calculation and analysis of personal water footprint (4 godz./0,16 ECTS) consultations (3 godz./0,12 ECTS), resit exam (2 godz./0,08 ECTS). Total – 53 godz./2,12 ECTS</p> <p>Non contact preparation of presentation (8 godz./0,32 ECTS), preparing the project (9 godz./0,36 ECTS) preparing a report on field classes (5 godz./0,2 ECTS) studying literature (8 godz./0,32 ECTS), preparation for the exam (17 godz./0,4 ECTS),</p>

	Total - 47 godz./1,88 ECTS
Nakład pracy związany z zajęciami wymagającymi bezpośredniego udziału nauczyciela akademickiego	participation in lectures – 15 hours; in exercises – 25 hours; in calculating household water consumption – 4 hours; in calculating and analyzing personal water footprint – 4 hours; In consultations – 3 hours; in the resit examination – 2 hours
Odniesienie modułowych efektów uczenia się do kierunkowych efektów uczenia się	W1 – OS_W01 W2 – OS_W03 U1 – OS_U02 K1 – OS_K03