



UNIwersYTET
IM. ADAMA MICKIEWICZA
W POZNANIU

Aquatic management

Educational subject description sheet

Basic information

Study programme Environmental Protection		Didactic cycle 2024/25	
Speciality -		Subject code 01EVPS.22N.12950.24	
Organizational unit Faculty of Biology		Lecture languages English	
Study level Second-cycle programme		Course type Obligatory	
Study form Full-time		Block Subjects not assigned	
Education profile General academic			
Subject coordinator	Renata Dondajewska-Pielka		
Lecturer	Renata Dondajewska-Pielka, Piotr Klimaszyk, Katarzyna Kowalczevska-Madura, Michał Rybak		
Period Semester 2	Activities and hours • Lecture: 15, Exam • Classes: 15, Graded credit		Number of ECTS points 3

Goals

Code	Goal
C1	familiarize the students with the global water resources and its sustainable management
C2	transfer a knowledge on the role of catchment management (forestry, agriculture, urban areas) and fisheries on the transformation of water systems
C3	provide information on the protection of the quantity and quality of water resources and possibilities and needs of water retention in the light of human pressure on aquatic environment, including climate changes
C4	transfer knowledge on drinking water requirements and societal importance of water resources
C5	familiarize the students with water management in the aspect of excessive water amounts (floods) as well as its scarcity (droughts)
C6	transfer knowledge on functioning and environmental impact of dam reservoirs and hydropower plants
C7	provide information on inland shipping in the light of its environmental profits and losses
C8	develop skills of critical approach to water management projects in the aspect of its sustainability
C9	develop skills of communication and cooperation

Subject learning outcomes

Code	Outcomes in terms of	Learning outcomes	Examination methods
Knowledge - Student:			
W1	explains and describes the structure of global water resources and its management and demonstrates the need of water resources protection	EVP_K2_W01	Written exam
W2	describes the role of forest management, agriculture, fishery, land drainage in water management and propose preventive actions in the watershed aiming at water resources protection by means of its quantity and quality	EVP_K2_W03, EVP_K2_W05, EVP_K2_W07	Written exam
W3	describes methods of sustainable water supply for human needs	EVP_K2_W03, EVP_K2_W07	Written exam
W4	characterises environmental consequences of water management (anti-flood protection, dam reservoirs, hydropower, river transformations)	EVP_K2_W03, EVP_K2_W07	Written exam
W5	justifies the need of sustainable water management (water retention) in the aspect of climate changes	EVP_K2_W03	Written exam
Skills - Student:			
U1	uses literature sources in term of their proper selection and citation	EVP_K2_U01	Report
U2	assesses the water management projects in the aspect of sustainability and environmental impact	EVP_K2_U04, EVP_K2_U06	Written exam, Report
U3	provides information on potential consequences of human actions in aquatic ecosystems and discusses it with others	EVP_K2_U05	Report
Social competences - Student:			

Code	Outcomes in terms of	Learning outcomes	Examination methods
K1	is ready to play the role of science popularizer for aquatic ecosystem management	EVP_K2_K06	Report
K2	demonstrates the ability to critically analyze source data and express own opinion in the aspect of water management	EVP_K2_K01, EVP_K2_K02	Report

Study content

No.	Course content	Subject learning outcomes	Activities
1.	Global water resources and its management	W1, U1, K1, K2	Lecture
2.	The role of forestry, agriculture and fishery management in the transformation of water systems	W2, U1, K1, K2	Lecture, Classes
3.	Water quality and quantity in the light of human pressures and climate changes	W2, W3, W5, U1, U2, U3, K1, K2	Lecture, Classes
4.	Transformation of river by means of water damming, hydropower plants, channelization for inland shipping and anti-flood protection	W4, U1, U2, U3, K1, K2	Lecture, Classes
5.	Sustainable water management	W5, U1, U2, U3, K1, K2	Lecture

Additional information

Activities	Teaching and learning methods and activities
Lecture	Lecture with a multimedia presentation of selected issues
Classes	Classes method, Demonstration and observation, Work in groups, Solving calculation tasks

Activities	Credit conditions
Lecture	A prerequisite for passing the class is a passing grade on a written exam. A student may take the exam only if he/she has received a positive grade from the classes. Grades: 5,0 - excellent knowledge, skills and competence, obtaining 91-100% points on the exam; 4,5 - very good knowledge, skills and competence, obtaining 81-90% points on the exam; 4,0 - good knowledge, skills and competence, obtaining 71-80% points on the exam; 3,5 - satisfactory knowledge, skills and competence but with shortcomings, obtaining 61-70% points on the exam; 3,0 - satisfactory knowledge, skills and competence but with many mistakes, obtaining 51-60% points on the exam; 2,0 - unsatisfactory knowledge, skills and competence, obtaining less than 51% points on the exam;
Classes	A prerequisite for passing the class is a passing grade on a report. Grades: 5,0 - excellent knowledge, obtaining 91-100% points on the report; 4,5 - very good knowledge, obtaining 81-90% points on the report; 4,0 - good knowledge, obtaining 71-80% points on the report; 3,5 - quite good knowledge, obtaining 61-70% points on the report; 3,0 - satisfactory knowledge, obtaining 51-60% points on the report; 2,0 - unsatisfactory knowledge, obtaining less than 51% points on the report;

Literature

Obligatory

1. LaMoreaux J.W., 2017, Sustainable water resources management, Springer
2. Holden J., 2013, Water resources: an integrated approach, CRC Press

Optional

1. Zalewski M., Wagner-Lotkowska I., 2004, Integrated watershed management - Ecohydrology&Phytotechnology - manual, UNESCO

Calculation of ECTS points

Activities	Activity hours*
Lecture	15
Classes	15
Reading the indicated literature	10
Report preparation	15
Preparation for the exam	20
Student workload	Hours 75
Number of ECTS points	ECTS 3

* academic hour = 45 minutes

Efekty uczenia się dla kierunku

Kod	Treść
EVP_K2_K01	The graduate is ready to critical assessment of received information on environmental protection as well as formulation of rational judgments on this subject
EVP_K2_K02	The graduate is ready to recognition of the importance of science in solving cognitive and practical problems as well as critical analysis of information functioning in non-scientific circulation in the field of environmental protection
EVP_K2_K06	The graduate is ready to acting as a scientific promoter of biodiversity protection, sustainable development and environmental protection
EVP_K2_U01	The graduate can creatively use his/her knowledge in the field of environmental protection, i.e. search for, formulate and solve complex problems, conduct a critical analysis of information from various sources
EVP_K2_U04	The graduate can analyse, evaluate and - consequently - predict the direct or indirect impact of humans on other organisms and the environment
EVP_K2_U05	The graduate can conduct educational activities and disputes about environmental protection, threats and biodiversity protection
EVP_K2_U06	The graduate can evaluate the effectiveness of the measures taken to prevent or repair damage to natural resources
EVP_K2_W01	The graduate knows and understands theories, processes, facts, and objects related to general knowledge about environmental protection and related sciences
EVP_K2_W03	The graduate knows and understands principles of water quality assessment and water resource management as well as methods for effective restoring them to their proper condition
EVP_K2_W05	The graduate knows and understands principles of rational shaping of the environment and management of natural resources in accordance with the principles of sustainable development
EVP_K2_W07	The graduate knows and understands problems of counteracting environmental degradation and pollution as well as waste management