



Course title: WATER ECOSYSTEMS

ECTS credit allocation (and other scores): 1.5

Semester: autumn

Level of study: ISCED-7 - second-cycle programmes (EQF-7)

Branch of science: Agricultural sciences

Language: English

Number of hours per semester: 25

Course coordinator/ Department and e-mail: prof. dr hab. inż. Katarzyna Glińska-Lewczuk, Department of Water Resources Climatology and Environmental Management, kaga@uwm.edu.pl

Type of classes: classes and lectures

Substantive content

CLASSES: Classification of water ecosystems. Hydrographic maps and other sources of hydrological data. Hydrographic catchment parameters. Hydrography and hierarchy of a river network. Characteristics of a chosen river system. Rules of location of man-made water bodies. Hydro-morphological assessment of a stream channel section (outdoor classes), including an assessment of the degree of naturalness of the stream channel. Hydrological measurements of surface and groundwater. Morphological characteristics of the bank zone of a reservoir or a river.

LECTURES: The course covers all facets of fresh water aquatic habitats, and therefore, considers the physical, chemical and biological characteristics of freshwater ecosystems. The significance of water ecosystems in the landscape. Geomorphologic features formed by water. Fluvial landscapes. The role of groundwater in the landscape. Functions of lakes in the landscape. Types and role of the retention reservoirs. Artificial water bodies in urban areas. Waterfronts and ports. Boulevards. Methods of water ecosystem management for recreation and economical purposes. Water ecosystem threats and restoration – the most interesting investments worldwide.

Learning purpose: The course of "Water ecosystems" deals with the importance of water ecosystems for human life. Students should define and characterize the factors influencing fluvial landscapes based on the hydrological and geomorphological knowledge and characterize the functions of water ecosystems in the natural and cultural landscapes. Students should also possess the ability to assess water-related changes in the environment and understand the vitality of water features for nature protection, recreation and aesthetics. Students should understand the causes of aquatic ecosystem degradation and indicate methods of water ecosystem restoration.

On completion of the study programme the graduate will gain:

Knowledge: The student has extensive knowledge of biology, chemistry, mathematics, physics and other sciences adopted to the studied area and understands complex phenomena and natural processes. She/he knows the role of water management in the sustainable use of biodiversity and its threats.

Skills: The student has the ability to research, understand, analyse and creatively use the required information for environmental protection from various sources. Independently and comprehensively analyses the problems influencing the quality of water, human health, state of the natural environment and water resources and is able to apply special techniques and optimise them to the requirements of the study course and profile. She/he is able to communicate precisely with other entities in oral, written and graphic forms.



Social Competencies: The student has an ability to undertake activities aimed at risk limitation and prediction of the agricultural impact on water ecosystems. She/he is able to define the priority activities essential for the realization of the specific tasks.

Basic literature: Glatthorn, A.A. 2005. Writing the winning thesis or dissertation: A step-by-step guide. Thousand Oaks;
Brown, R. 2006. Doing your dissertation in business and management: The reality of researching and writing. SAGE.

Supplementary literature: Varia 2007. Relevant literature/articles published in environmental engineering.

The allocated number of ECTS points consists of:

Contact hours with an academic teacher: 0.96 ECTS points

Student's independent work: 0.54 ECTS points