UNIVERSITY OF WARMIA AND MAZURY IN OLSZTYN

Faculty of Environmental Management and Agriculture

Course title: AQUATIC ECOSYSTEM MONITORING

ECTS credit allocation (and other scores): 3.5

Semester: spring

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

Branch of science: Agricultural sciences

Language: English

Number of hours per semester: 45

Course coordinator/ Department and e-mail: prof. dr hab. Mirosław Wyszkowski, Department of Environmental Chemistry, miroslaw.wyszkowski@uwm.edu.pl

Type of classes: classes and lectures

Substantive content

CLASSES: The rules of monitoring of surface water and groundwater based on the latest legislation. Criteria for the selection of surface water for monitoring in the framework of monitoring: diagnostic, operational, research and protected areas and criteria for the designation of points for measurement and control. The method of collecting representative samples of surface water and groundwater. Assessment of potential risks and indicators of water pollution in the country and in the Warmia and Mazury. The choice of methods used in the analyses of water and the scope and frequency of research. Determination of selected quality indicators in surface waters. Analysis of the purity of surface water in Warmia and Mazury. Forecasting changes in the state of environment and the selection of preventive measures to counter the negative effects of the discharge of pollutants into aquatic ecosystems.

LECTURES: Organization and review of the monitoring programs of water ecosystems in Poland since the start of its operations. The current structure of the State Environmental Monitoring and monitoring of aquatic ecosystems. Characteristics of tasks in monitoring of aquatic ecosystems. Cooperation with the European Environment Agency and other international organizations occupied monitoring research. Quality and information systems in environmental monitoring. Dissemination of research of monitoring results.

Learning purpose: Understanding the scope of monitoring of aquatic ecosystems and water quality in relation with other components of the environment, especially with standards in Poland and European Union.

On completion of the study programme the graduate will gain:

Knowledge: Student knows the structure and programs of the monitoring of water ecosystems implemented in recent years, legislation, pollution indicators and methods used in the study of the aquatic environment and the trends of changes in water pollution and related other environmental elements.

Skills: Student gains the ability to interpret of results of research and assessment of the state of main elements in the environmental water ecosystems and the degree of exceeding the limit values for pollutants contained in the legislation - national and European Union, as well as the prediction of changes in the state of environment that may occur in the future.

Social Competencies: Student understands the need for systematic filling up of the knowledge of the research of the environment state of aquatic ecosystems, especially in the context of its pollution and he has aware of the importance of monitoring tests in environmental protection, the validity of preventive and conservation actions to prevent the

negative effects of emissions to the individual components of the environment, mainly water. Student demonstrates competence with knowledge of the scope and methods of research in the framework of monitoring.

Basic literature: Programy Państwowego Monitoringu Środowiska z lat 1992-2020 i na lata następne. GIOŚ,Warszawa; Raporty o stanie środowiska w Polsce od roku 1992. GIOŚ, Warszawa; Raporty monitoringowe Europejskiej Agencji Środowiska. EAŚ, Kopenhaga; Raporty monitoringowe poszczególnych podsystemów PMŚ i WIOŚ.

Supplementary literature: Ochrona środowiska 2017 oraz z lat wcześniejszych i późniejszych. GUS Warszawa; EAŚ, http://www.eea.europa.eu/pl/; GIOŚ, http://www.gios.gov.pl/; WIOŚ Olsztyn, http://www.wios.olsztyn.pl/

The allocated number of ECTS points consists of:

Contact hours with an academic teacher: 1.81 ECTS points

Student's independent work: 1.69 ECTS points