UNIVERSITY OF WARMIA AND MAZURY IN OLSZTYN

Faculty of Environmental Management and Agriculture

Course title: ENVIRONMENTAL INFORMATION SYSTEMS

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: dr hab. Paweł Sowiński, Department of Soil Science and Land Reclamation, pawels@uwm.edu.pl

Type of classes: classes and lectures

Substantive content

CLASSES: Raster and vector data layers and their display. Geo-references of raster layers and spatial measurements. Creating vector layers and attribute tables. Analysis of raster and vector layers. Analysis attribute tables. Spatial processing (extract, dissolve, buffer, clip, merge, intersect, union).

LECTURES: The theory of geographic information systems (GIS). Raster and vector data layers. Attributes and databases. Analysis of raster and vector layers. Database analysis. Generate, edit and process layers. Numerical methods of processing information from aerial photographs and satellite images. Coordinate systems. DEM. Design of GIS use.

Learning purpose: General theory of GIS, the creation of spatial databases, the basic operations on the spatial data and databases

On completion of the study programme the graduate will gain:

Knowledge: Knows the theory of geographic information systems.

Skills: Can obtain information about the natural environment from various sources.

Social Competencies: Understands the need to use modern tools for creating and analysing spatial databases.

Basic literature: Dobers E.S., Sowiński P. 2011. Wprowadzenie do systemów informacji przestrzennej. Elset, Olsztyn. Gotlib D., Iwaniak A., Olszewski R. 2007. GIS - Obszary zastosowań. PWN, Warszawa; Iwańczak B. 2016. QGIS. Tworzenie i analiza map. Helion, Gliwice; Szczepanek R. 2013. Systemy informacji przestrzennej z Quantum GIS. Wydawnictwo Politechniki Krakowskiej, 2013; Urbański J. 2012. GIS w badaniach przyrodniczych. Centrum GIS, Uniwersytet Gdański.

Supplementary literature: Bajerowski T. (red). 2003. Podstawy teoretyczne gospodarki przestrzennej i zarządzania przestrzenią. UWM, Olsztyn; Kozak J., Pyka K. 2011. Zdjęcia lotnicze. Atlas fotointerpretacyjny. MGGP Aero, Warszawa, Longley P. A., Goodchild M. F., Maguire D. J., Rhind D. W. 2006. GIS - Teoria i praktyka. PWN, Warszawa.

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