Study programme: Geography/ Geography teaching – Master Academy Studies Level: Master

Course title: Methods for the analysis of geographic data

Lecturer: dr Imre Nað

Status: Elective

ECTS: 7

Requirements: None

Learning objectives: Data analysis is one of the most important functions of GIS, distinguishing it from other information systems. The analysis of spatial relationships (topology), distance, and spatial variation of occurrence obtained information about objects and processes in the geosphere and the causal relationships between them. The goal of this course is to introduce students to the available methods of spatial analysis that can be applied in research and problem situations related to geographic phenomena in the field.

Learning outcomes: Knowledge of principles, importance and possibilities of analysis of spatial data. Training to perform spatial analysis using modern methods. Acquiring knowledge applicable in a broad range of activities related to spatial phenomena and processes.

Syllabus

Theoretical instruction:

History and significance of the geographic data; Statistical methods in spatial analysis and geostatistics; The survey data; Data classification; Analysis of cluster; Methods of detection anomalies array data; Analysis within GIS (vector and raster data models, attributes and queries in data analysis, etc.).

Practical instruction:

Examples of analyzing different types of data within GIS (vector and raster data models, queries, etc.); Solving tasks using statistical and geostatistical methods;

The analysis of geographical data in climatology, hydrology, geology, geomorphology, pedology, biogeography and environmental sciences;

The analysis of geographic data in demographics, health, urban management systems;

Using different statistical software packages (Excel, SPSS and Statistica).

Literature:

Stewart Fotheringham, Chris Brunsdon, Martin Charlton, 2000, Quantitative Geography: Perspectives on Spatial Data Analysis, SAGE Publications, ISBN 0761959483, 9780761959489, 270 pages.

Fahui Wang, 2006, Quantitative Methods and Applications in GIS, CRC Press, ISBN 142000428X, 9781420004281, 304 pages

Basil Gomez, John Paul Jones (Ed), 2010, Research Methods in Geography: A Critical Introduction, Volume 6 of Critical Introductions to Geography, Editors:, III Edition, John Wiley & Sons, ISBN 1405107103, 9781405107105, 480 pages

Tan, P.N., Steinbach, M., Kumar, V. 2006. Introduction to Data Mining. Addison-Wesley, Boston: 769 pp.

O'Sullivan, D., Unwin, D. 2010. Geographic Information Analysis. John Wiley & Sons: 432 pp.

Walford, N. 1995. Geographical Data Analysis. Wiley: 458 pp.

Weekly teaching load 4 (60)						Other:
Lectures:	Exercises:	Other forms of teaching:		Student research:		-
2	2	-		-		
Methods of Teaching: Lectures, Illustration and Demonstration, Practical skills						
Knowledge score (maximum 100 points)						
Pre-examination assignements			points	Final examination		points
Activities during lectures			0-5	Written examination		
Practical skills			0-5	Oral examination		30-45
Colloquia		20-40				
Seminar paper		0-5				