

Tárgy neve: The applications of GIS in physical geography

Tárgyfelelős neve: Bíró Tamás

Tárgyfelelős tudományos fokozata: PhD

Tárgyfelelős MAB szerinti akkreditációs státusza: AT

Az oktatás célja:

a, knowledge

- Knowledge of the specific tools of geoinformatics, ability to apply field survey procedures, data management and analysis, and visualization solutions. Knowledge and use of spatial data collection technologies, available databases and spatial information software, as well as open source and commercial geoinformatics software, cloud-based geoinformatics solutions.

- Understandings, knowledge and application of mobile field, laboratory and practical materials, tools and methods of geoinformatics.

- In his/her native language, he/she confidently uses the conceptual system and terminology describing natural processes and can adapt it to the conceptual framework of geoinformatics.

b, abilities

- Ability to interpret complex professional problems in the field of geoinformatics, to explore the necessary theoretical and practical background and to solve problems.

- Ability to understand, plan and implement a quality management system for project-level tasks in the field of geoinformatics.

- Ability to collect data independently and organize spatial data into a database, as well as to organize the data with the tools of geoinformatics. Ability to perform operations and models with independently organized databases.

c, attitude

- Monitors professional and technological developments in the field of geoinformatics and the labour market trends.

- Committed to adhering to and making others adhere to quality requirements.

- Accepts and adheres to the ethical principles of work and organizational culture, especially with regard to the copyright related to geoinformatics.

d, autonomy and responsibility

- Independence regarding the thorough examination and elaboration of professional issues and processes.

- Feels responsible for meeting and making others meet the deadlines. He/she is responsible for his/her work and for his/her co-workers' work in projects.

- With his/her knowledge and skills of geoinformatics, he/she cooperates responsibly with professionals in other fields.

Az oktatás tartalma:

Introduction into theory and practice of project-based physical geographical research using

Geoinformatics (GIS) is the principal goal of this course. The aim of this practical course is to use routines of handling and analysing digital elevation models and geostatistics obtained previously in order to solve problems that are in the focus of physical geographical studies. Consequently, the course allows to recognize the opportunities and limitations of GIS-based analyses in classical physical geographical and geomorphological research. Students could gain practice in managing research projects including finding out relevant research questions, using effective research methodology and analysing/publishing data and results due to the project-based learning and workflow.

A számonkérés és értékelés rendszere: practical course mark based on course work.

Kötelező irodalom:

- Otto, J.C., Prasicek, G., Blöthe, J. and Schrott, L., 2018: GIS applications in geomorphology. In: Comprehensive Geographic Information Systems; Huang, B., Ed.; Elsevier Inc.: Bonn, Germany, pp.81-111.; doi:10. 1016/B978-0-12-409548-9.10029-6
- Tarolli, P., 2014: High-resolution topography for understanding Earth surface processes: Opportunities and challenges. *Geomorphology*, 216, pp. 295-312. doi: <https://doi.org/10.1016/j.geomorph.2014.03.008>

Ajánlott irodalom:

- Davis, J.C. 2002: *Statistics and Data Analysis in Geology*, 3rd Edition. John Wiley & Sons., New York, 656 p.; ISBN: 9780471172758
- Reddy, G.P.O. 2018: Remote Sensing and GIS for Geomorphological Mapping. In: Reddy G., Singh S. (eds) *Geospatial Technologies in Land Resources Mapping, Monitoring and Management. Geotechnologies and the Environment*, vol 21. Springer, Cham. doi: https://doi.org/10.1007/978-3-319-78711-4_12