



## Syllabus

**Term:** 2026/27/1      **Subject name:** Introduction to GIS I.      **Subject code:** AFOLNA1001

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**Unit (Unit code)**      Institute of Geography and Earth Sciences (FOLDRAJZ)

**Lecturer responsible for the course:** VIG Balázs

**Requirement:** Term mark

**Classes per week :** 0/3/0

**Classes per term:** 6/0/0

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### Purpose of education:

Course objectives and learning outcomes: Aims: To provide an understanding of the basics of GIS and digital cartography. To provide information about vector graphic tools of the Inkscape software and to introduce technical steps of digital mapping. Knowledge: On successful completion of this course students are expected to be able to map geo data using the Inkscape software, to have an understanding of special terms and fundamentals of cartography, to be familiar with tools of vector graphics. Subject-specific skills: On successful completion of the course students are expected to be able to evaluate formerly prepared data for cartographic purposes and map physical and human geographic cases. They are able to understand, interpret and present spatial data and accomplish basic cartographic tasks using Inkscape.

### Contents:

Course outline / Milestones The course is built up from a lecture and a seminar part. The lecture covers 6 hours and starts on the first week of the semester. The seminar starts also on the first week with a maximum number of students 20. Lecture: Introduction to GIS and digital cartography. Coordinate systems, projections. Basics of cartography (scale, classification of maps, generalisation, sectioning). Elements of maps (relief, planimetry, inscriptions, other elements). How to use a map (orientation, map reading)? Measurements, calculations on the map (measuring distances, areas, calculating elevation and slope). Thematic maps and thematic mapping techniques. The procedure of digital mapping. Colors, font types and special characters on maps. Seminar: Disclose the course description to students. Downloading and starting the Inkscape vector graphic software, software settings. Document settings, units. Open and save map; svg file format, compatibility. Interpretation of formerly prepared svg map. Layer handling, layer order, grouping, arrange, guide line, grid, snapping. Scaling, rotating, flip, union, difference, intersection, exclusion, division. Bézier curve, node tool, node tool. Technical steps of linear object drawing. Properties of polygons, fill, pattern. Technical steps of polygon object drawing. Point-like objects, proportional scaling, pictograms. Raster graphics (import), digitalisation. Text on maps. Map and additional elements (title, source, legend, scale). Thematic map (printing, export). Mid-semester works Download and install Inkscape, starting the application, application settings. Modify document settings, open svg vector graphics and save into different file types. Create layer, delete layer, rename layer, set transparency, lock layers, set layer order arrange objects within layers, group and ungroup elements. Setup guide lines, grid and snapping. Scale, rotate, flip objects, logical operations. Draw Bézier curve, smooth curve, split curve, combine objects, break apart objects, node tool, extend lines, simplify lines, set up line properties, format end nodes and vertices, set up line with and pattern. Digitalisation and set up of waters, roads and contour lines. Set up polygons, modify of fill and pattern. Draw textures. Digitalisation of regional elements (practicing polygon settings). Digitalisation of point and point-like objects, proportional scaling, downloading, importing and editing pictograms. Importing raster graphics, digitizing. Setting up text layers on maps. Editing additional elements of maps. Printing and exporting thematic maps.



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### System of examing and valuation:

Summative assessment, formative assessment Evaluation is based on one written exam and the evaluation of the work of students. Students will write a written exam after the lecture. They can reach 25 points and have 45 minutes to fulfill the test. Students can receive 0-5 more points during each lecture. Seminar points will be summed at the end of the semester. Students have to participate at least on 10 seminars, therefore students can collect minimum 0 and maximum 50 points. If someone participates on more than 10 seminars than 10 highest seminar points will be summed. Seminar and written exam points will be summed (cumulative points) at the end of the semester. Students can gain 75 points during the semester (maximum points). Percentage of cumulative and maximum points will be calculated. Grading percentages may vary according to the position of the Gauss curve, but the approximate ranges are the followings: just less than 50% = 1 50 to 64.99% = 2 65 to 74.99% = 3 75 to 84.99% = 4 85+% = 5 Attendance at all activities will be monitored. Students who fail to attend the activities, or to complete the summative or formative assessment specified above, will not gain the credit for the course. We provide further possibilities to repeat written exam on the 13th week. Topics of the written exam fit to the topics of the lecture

### Bibliography:

Reading assignments: Inkscape tutorials (<https://inkscape.org/en/learn/tutorials/>) Cromley, RG. (1992). Digital Cartography (1st ed.). Prentice Hall Recommended texts: Peterson, GN. (2014) GIS Cartography: A Guide to Effective Map Design (2nd ed.)CRC Press

### Bibliography: