

## Master's Program in Data Science – Interdisciplinary Electives Geographic Information Systems

Students must decide for <u>one</u> specific area within the Interdisciplinary Electives and attend at least two courses worth 8-12 credits within this area.

The course compilation Geographic Information Systems introduces students to digital modelling for the space we live in, to measuring systems, to the representation of spatial information in data sources and how to record it, analyze it, and visually represent it. With this background knowledge, students can follow more advanced courses in the area of GIS and cartography.

## Basic Courses (recommendation: both courses)

Number	Title	Credits	Semester	Language
103-0237-00L	Advanced GIS	6	spring	EN
103-0717-00	Geoinformationstechnologien und – analysen	6	autumn	DE

Note:

GIS I and GIS II are not required for Advanced GIS or Geodata Analysis for students that have a solid background in Computer Science. The lectures GIS I & II are available for further reference.

## Advanced Courses (recommendation: the lab is an opportunity to query real-life datasets)

Number	Title	Credits	Semester	Language
103-0227-00L	Application Development in Cartography	6	autumn	EN
103-0778-00L	GIS and Geoinformatics Lab	4	autumn	EN
103-0247-00L	Mobile GIS and Location-Based Services	5	spring	EN
103-0228-00L	Research Topics in Cartography	6	spring	EN

Notes:

1. Some exercises in **Application Development in Cartogrpahy** use DTP programs like Adobe Illustrator, and GIS programs like QGIS and ArcGIS. Most students attending this course already have practical experience with map and graphical design. It is expected that Data Science students acquire this know-how on their own as no crash course is given. The lecture notes of the corresponding BSc courses offered at ETH (Kartografie I & II, Thematische Kartografie) are available, as well as textbooks, e-learning platforms like www.gitta.info or www.nahris.ch, and software sites such as www.esri.com and www.qgis.org.

February 2024