

GITTA - Open Content Strategy

Since January 2006 the first GITTA lessons become available under the Creative Commons license. The goal is to establish a „GITTA Community“ that will update and maintain the content of the GITTA lessons. Because GITTA uses an open source XML framework called eLML, no commercial or proprietary software is needed to start implementing or updating lessons and case studies.

Available Content

The main goal of the module is to contribute the technical knowledge required for informed development of GIS applications. Therefore, the key concepts and techniques of spatial analysis are presented at a basic and intermediate level. Lessons include fundamentals and techniques for dealing with continuous and discrete spatial variables, spatial queries, terrain analysis, suitability analysis, accessibility analysis, and uncertainty handling. There is a close relationship with the Spatial Modeling module.

This module presents the main concepts -- projections, location, and topology -- that drive the modeling of the Geographic Space (GS). It gives an overview of GS modeling processes, using regularly and irregularly distributed observation units (raster and object models). The properties of spatial information are then analyzed from the point of view of its measurement scale and origin (measured, derived, or interpreted). Finally, the process of digitization is presented.

The Database System module incorporates the concepts and architectures associated with databases. First, specific terms are discussed, then the characteristics of such a database approach are compared with other systems. After an overview of database architectures, data models and the Structured Query Language (SQL) are introduced. Exercises and self-tests help to augment the theory.

The Data Presentation module describes the history and use of maps, while introducing the different map types available. Its emphasis is on topographical cartography and the components required for map development, including graphical design with text and color by reference to readability rules. A further focus concentrates on cartographic generalization concepts, procedures, and methods. Within the intermediate lessons, thematic map design as well as mapping with a GIS and cartographic software are discussed.

After having worked with different lessons from the six available modules, students are confronted with realistic and practice-relevant GIST cases and must solve a case independently to train their problem-solving skills. Original, not pre-processed, case material is provided and a tutor is helping the students to find solutions for solving the case.

The module offers a basic introduction to Geographic Information Systems Technology (GIST), and provides information about existing commercial products and their areas of application. The module is also intended to explain the most commonly followed software architectures of Geographic Information Systems (GIS) and their impact on system usage.

The Data Capture module introduces students to sources of geographic data and to the broad process of digital capture and data pre-processing. It focuses on selected capture procedures in order to detail strategies and methodologies for the production of relevant geographic information. This module is structured into 4 lessons, with the following content: Overview of sources, Primary sources, Derived sources, and Metadata and quality. Each lesson comprises exercises and a self-test.

1.1.2. Map Scale

Once you have decided of the objects to be represented, you have to choose the map scale. What is a **map scale**? Scale is the amount of reduction that takes place in going from real world dimensions to the new mapped area on the map plane.

Technically, the scale of a map is defined as the ratio of distance measured upon it to the actual distances which they represent on the ground (Definition used in the ICA Multilingual Dictionary of Cartography Terms, Wiesbaden, 1973). In a general way, this numerator will always be a round number (and not 1.25 350).

For example, if a straight line on the ground of length 2.5 km is shown on a map by a line of length 2.5 cm, the scale of the map may be calculated from:

$$\frac{\text{Map distance (cm)}}{\text{No of cm in 1m}} = \frac{\text{Scale denominator}}{\text{No of meters in 2.5 km}}$$

$$\frac{2.5}{100 \times 2500} = \frac{1}{100000}$$

Commonly used to classify maps according to scale. The scale values attributed to each

small portions of the earth surface; detailed information may therefore be shown. The areas, so only limited detail can be carried on the map.

Scale larger than 1:25 000
1:25 000 to 1:100 000
Scale less than 1:200 000

different scales of the same town. Choose the mouse the appropriate radio-button.



Map scales
Select a scale and show the according map information

☐ 1:25 000: Large scale.
☐ 1:100 000: Medium scale.
☐ 1:500 000: Small scale.

Sources: Map extract, 1:25 000; 150 000; 1:100 000; Federal Office of Topography.

(new window)

to determine the correct scale. Choose the answer by clicking your answer by clicking the "Submit" button.

is known to be 1:25 000 what is the map corresponds to a ground distance of 2000 m?



map is known to be 1:50 000 what is the which corresponds to a map distance of 3.0 cm?



Assignment: Map Critics

Sensitivity to Layout Design.

Map related illustration in a newspaper, leaflet, book, internet, etc. designed written discussion taking the following into account:

For discussion in 2-3 written DIN A4 page layout together with digital version of your map. The text should be clear, explicit and without spelling errors including the following information: Date, Map reference/Source as well as the time you required. Your Course Leader will decide about language to use (German/French/Italian/English).

Questions below can be considered as a thread for your discussion:

- Is the scale well chosen? Propose a better solution.
- Are the map elements well positioned? How can you improve it?
- Is the colour composition well done? How can you improve it?
- Is the typography appropriate? Is there a reason for improvement?
- Have the readability rules been respected?
- Can you find aspects to set-up an improved layout?

Presentation

Submit your results (mail or printed) depending on the deadline your course leader conveyed to you.

Contact

University of Zurich
Department of Geography
Prof. Dr. Robert Weibel
Dipl. Natw. Joël Fislér
Winterthurerstrasse 190
8057 Zurich
Switzerland

Tel.: +41 (0)44 6355252
Fax: +41 (0)44 6356848

coordinator@gitta.info

Project Information

Within the Swiss Virtual Campus project GITTA (Geographic Information Technology Training Alliance), 10 partners from 7 Swiss higher education Institutions have created a pool of lessons and case studies that:

- integrate Swiss-wide available GIS knowledge;
- construct a virtual education pool that provides flexibility within different disciplines; and
- provide a hybrid learning environment to substitute ex-cathedra teaching.

GITTA is divided into the 6 modules described above each containing 3 to 7 lessons on two levels (basic and intermediate). These modules are supplemented by case studies, in which the theory is applied so that the students' problem-solving skills are enhanced.

Partner Institutions:



University of Zurich



ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich



EPFL
ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE



n|w
Fachhochschule
Nordwestschweiz



HSR
HOCHSCHULE FÜR TECHNIK
RAPPERSWIL



UNIVERSITAS
FRIBURGENSIS

Scuola Universitaria Professionale
della Svizzera Italiana

Website

http://www.gitta.info