

## **Geoinformatics**

- Outline of GIS: main data models
- Relational database and the vector based GIS
- Spaghetti topology and its standards (OGC)
- Relational databases and topology preserving data structures
- Network model: linear reference and dynamic segmentation
- Routing
- Software products and libraries for handling spatial data
- Spatial application development
- Raster based data structures
- Simple image processing tasks
- Digital filters
- Classification, segmentation
- 3D data models: TIN and DEM
- Tools for application development

### **Literature:**

P. Rigaux, M. O. Scholl, A. Voisard: Spatial Databases: With Application to GIS, Morgan Kaufmann Publishers, 2002.

Hassan A. Karimi: Handbook of Research on Geoinformatics  
IGI Global, 2009, ISBN 9781591409953

Kresse, Wolfgang, Danko, David M. (Eds.): Springer Handbook of Geographic Information  
Springer, 2012, ISBN 978-3-540-72678-4

### **Suggested literature:**

Hannan Samet: The design and analysis of spatial data structures, Addison-Wesley, 1994

Thomlinson: Thinking about GIS, ESRI Press, 2012