



## **DATA BASE AND GIS – Outline**

*MASTER «PODEPRO*

*Department of Planning and Regional Development, University of Thessaly, Greece*

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### **THEORETICAL ISSUES**

- INTRODUCTION – PRELIMINARIES
- DATA BASES (a general approach)
- GEOGRAPHIC INFORMATION SYSTEMS (main characteristics, scope, introduction to reference systems)
- GEODATASETS STRUCTURE: VECTOR, RASTER (GeoDataBase structure: a brief presentation)
- VECTOR GEODATASETS (points, lines, polygons, regions)

### **HANDS-ON TRAINING WITH THEORETICAL DOCUMENTATION**

- ArcMap: an overview
- Quantum GIS: an overview
- ArcMap - Quantum GIS: Comparison
- Comprehensive use of ArcMap (as follows)
- Working with shapes (point, line, polygons, regions)
- Symbology (basic topics – not data classification)
- Labeling (basic topics – Maplex)
- Map Compositions (summarized approach of layout with short hands-on training)
- Spatial Queries (building queries, select by attribute, select by location)
- Spatial Adjustment and Georeference (no hands-on training, only presentation)
- Working with Attribute Tables (add-delete fields, calculate field, calculate geometry, statistics, summarize)
- Joining Tables (preparation of table, join)
- Dissolve (and a short presentation for NUTS and LAUS)
- Interpolation and Spatial Relations (buffer, clip, spatial join, union, intersect)

- Editing (introductory description with limited hands-on training)
- Arc Catalog: an overview
- Creating New Shapes
- A complete hands-on application based on specific thematic topics

### **DATA FOR HANDS-ON TRAINING**

- Polygonal GeoDataSet for Greek Municipalities (“Kallikrates”) with limited thematic attributes (population, de facto population, resident population, 2001, 2011, etc). A modified geodataset from //geodata.gov.gr
- Primary and Secondary Road Axes with limited thematic attributes. A modified geodataset from Greek Ministry of Infrastructure, Transport and Networks.
- Centers of Greek Settlements (1109 points) with de facto population (2001) over 1000 inhabitants. A modified geodataset from //geodata.gov.gr)

### **EDUCATIONAL MATERIALS**

- Will be ready soon in English (pdf files): i) a selected bibliography, ii) lectures slides, iii) educational notes on theoretical approaches concerning GIS development and implementation.

### **PLANNED ISSUES – COMING SOON**

- Spatial Join. Spatial Indices.
- Interpolation, Point Density and relevant applications.
- Presentation of students’ homework (29/03/2013). Student’s tutors: Michales Agorastakes.
- Tutorials on homework: 29/03/2013.
- Homework final submission: before Easter holidays.

### **EDUCATIONAL MEETINGS (COURSES)**

- Thursday 21/2/2013, 2 hours (done)
- Friday 22/2/2013 3 + 3 hours (done)
- Thursday 28/2/2013, 2 hours (done)
- Friday 1/3/2013, 3 hours (done)
- Thursday 28/3/2013, 2 hours (done)
- Friday 29/3/2013, 2 + 2 hours (planned)

*Total meetings: 8, Total hours: 19.*