

PhD in 'Territory Innovation and Sustainability'
PhD in 'Industrial and Civil Engineering'

Course title:

Geographic Information System: theory and practice

Eng. Sara Venturi

Researcher at University of Perugia

**14 and 21 December 2022, 14:00-17:00, Aula Ingegneria nuovo fabbricato
11 and 18 January 2023, 14:00-17:00, Room to be assigned**

Abstract: The aim of the course is to introduce the most significant functions and applications of Geographic Information Systems (GIS), in particular from a practical perspective, through the use of open source software. The course is organized in 4 lessons (3 hours each).

Every lesson includes a lab to provide a hands-on experience on theoretical topics.

Tentative course program:

Lesson 1:

- a) Overview of GIS data categories: vector and raster data; metadata.
- b) Exploration and manipulation of spatial data.

Lesson 2:

- a) Overview of geodetic reference systems.
- b) Map projection and georeferencing.

Lesson 3:

- a) Integration of Numerical cartography with GIS technology.
- b) Managing and processing of altimetric data.

Lesson 4:

Overview of free and open-source GIS platforms.

Sara Venturi: short curriculum vitae



Master Degree in Civil Engineering (2001 – University of Perugia);

Master Degree in Environmental and Land Engineering (2008 - University of Perugia).

Research projects: From 2000 to 2011, “*Studio e verifica della vulnerabilità idraulica dei manufatti della rete viaria di competenza provinciale ricadenti nelle fasce fluviali PAI*” (Provincia of Perugia; University of Perugia); from 2014 to 2015: “Redazione delle mappe di allagabilità finalizzata all’individuazione del rischio idraulico del reticolo idrografico minore del Fiume Tevere” (Provincia di Arezzo; Università di Perugia).

International Doctorate in Civil and Environmental Engineering (Thesis *topic*: solution of shallow water equations using lattice Boltzmann method, applied to large scale hydraulic analysis), University of Florence and Technical University of Braunschweig, Germany (Joint doctorate), May 2018.

At present: post-doc researcher at University of Perugia, Department of Civil and Environmental Engineering with the project: “MIDAR – Modello innovativo per la distribuzione dell’acqua irrigua”.

Skills and expertise: hydraulics, hydrological and hydraulic modelling, water engineering, GIS technology, UAV monitoring.

<https://www.researchgate.net/profile/Sara-Venturi-3>