



# Sant'Anna

Scuola Universitaria Superiore Pisa

**THE SOIL – WATER AND  
PLANT CONTINUUM FOR  
URBAN AND RURAL  
WASTEWATER  
PHYTOTREATMENT AND  
CONTAMINATED SITE  
REMEDICATION  
(SWAP)**

**Seasonal School**

**June 28th-July 2nd, 2021**



# 28 June

10-11 **Course introduction. Hydrology, climate change and pollution of soil and water matrixes.** Luca Sebastiani (SSSA)/Rudy Rossetto (SSSA)

11-13 **Phytotreatment of inorganic and organic xenobiotics.** Luca Sebastiani (SSSA)

14-16 **EU and Italian Legislative framework and environmental due diligence.** Marco Falconi (ISPRA)

16-18 **Phytoremediation and biological techniques for remediation of contaminated sites.** Marco Falconi (ISPRA)

# 29 June

9-11 **The soil resource.** Laura Ercoli (SSSA)

11-13 **Hydrology and site characterisation: tools, methods, relevant parameters and sensors.** Rudy Rossetto (SSSA)

14-18 **LAB ACTIVITIES Microwave mineralization.** Gaia Monteforti (SSSA) - **Organic molecules extraction from plant tissues for UPLC/MS-MS analysis.** Alessandra Francini (SSSA) - **DNA extraction from polluted soil and determination of functional microorganisms.** Elisa Pellegrino (SSSA)

# 30 June

9-11 LAB ACTIVITIES **MP-AES determination of metals.**  
Esteban Rafael Caligaris (SSSA)

11-13 LAB ACTIVITIES **UPLC\_MS\_MS determination of Organic molecules.** Luca Sebastiani (SSSA)

14-18 **Workshop "Phytoremediation and phytotreatment of contaminated land and polluted water: successful case studies".** Chairman: Rudy Rossetto (SSSA), speakers TBC

# 1 July

9-11 **Treatment wetlands as nature-based solutions for water pollution control: typologies and sizing methods.** Fabio Masi (IRIDRA srl)

11-13 **Treatment wetlands as nature-based solutions for water pollution control: applications.** Fabio Masi (IRIDRA srl)

14-21 LAB ACTIVITIES **Field trip to the Azienda Cecchi phytotreatment schemes (Castellina in Chianti) and social dinner.**

Field trip guide: Rudy Rossetto (SSSA)/Fabio Masi (IRIDRA srl)



# 2 July

9-11 **Sustainable drainage systems: nature-based solutions for urban runoff management.** Anacleto Rizzo (IRIDRA srl)

11-13 **LAB ACTIVITIES Management and spatial analysis of environmental data.** Rudy Rossetto (SSSA)

14-16 **LAB ACTIVITIES Management and spatial analysis of environmental data.** Rudy Rossetto (SSSA)

16-17 **Final assessment.**

17-18 **Recap and closing lecture.**

The programme is directed by RUDY ROSSETTO.

Rudy deals with surface and subsurface hydrology using hydrodynamics and hydrochemistry methods to achieve a synergic vision on water quality and quantity issues. He holds a MSc in Earth Science from Uni. of Pisa (IT), a MSc in Geo-environmental Engineering from Cardiff Uni. (UK) and a PhD in Engineering Geology from Uni. of Siena (IT).

Main research fields are focused on: i) water resources management in semi-arid conditions; ii) the analysis of functionalities of blue infrastructures (phyto-treatment plants and Managed Aquifer Recharge schemes) for the provision of water related agro-ecosystem services, and iii) the development and application of GIS integrated groundwater and solute transport numerical models to water management issues.