

Co-funded by the  
Erasmus+ Programme of  
the European Union



# The 2023 CIVIS Blended Intensive Programme

**Climate,  
Environment and  
Energy HUB**

Prof. M.L. Costantini  
Coordinator



*For Biology, Ecology,  
Environmental Science,  
Biotechnology and  
Chemistry students*

**Master and  
Doctoral students**

**Innovative approaches for  
effective detection and  
removal of pollutants in  
sustainable water  
management**

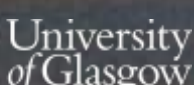
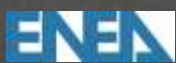
**12-16 June 2023 in Rome**

*Department of  
Environmental Biology*

**JOIN THE EVENT!  
SAVE THE DATE!**



In line with Sustainable Development Goals





## General programme of the BIP

	<b>Monday</b> 12.06.2023	<b>Tuesday</b> 13.06.2023	<b>Wednesday</b> 14.06.2023	<b>Thursday</b> 15.06.2023	<b>Friday</b> 16.06.2023
<b>9:00</b> - <b>11:00</b>	<b>Arrival and registration</b>	<b>Learning sessions</b>	<b>Learning sessions</b>	<b>Field training</b>	<b>Project writing session</b>
<b>11:15</b> - <b>13:15</b>	<b>Opening session</b>				
<b>11:15</b> - <b>13:15</b>	<b>Learning sessions</b>	<b>Learning sessions</b>	<b>Learning sessions</b>	<b>Field training</b>	<b>Project writing session</b>
<b>14:15</b> - <b>16:15</b>	<b>Learning sessions</b>	<b>Workshop</b>	<b>Visit to Stakeholders</b>	<b>Field training</b>	<b>Sum up and feedback</b>
<b>16:30</b> - <b>18:30</b>	<b>Learning sessions</b>	<b>Workshop</b>	<b>Visit to Stakeholders</b>	<b>Field training</b>	<b>Closing session</b>
<b>20:30</b>				<b>Social event</b>	



## LECTURES AND APPLICATIONS IN ROME

### 1) New ecological approaches to assess water quality

- Isotope fingerprints to track pollution sources and environmental changes over space and time
- Detection of Microcystin-producing cyanobacteria and naturally-occurring biodegrading bacterial community using qPCR.
- Ecotoxicology testing adapted for detection of Microcystins
- Identification of antibiotic resistant bacteria and genes
- Ecotoxicology testing with macro-invertebrates
- Behavioural studies with organisms
- Non-animal alternatives (NAMS etc)
- Identification of microbiological indicators of depollution by molecular methods
- Ecotoxicological tests in water mixtures to support chemical analysis
- Degradation tests under anaerobic conditions

### 2) New chemical approaches to assess water quality

- Sources, occurrence and health impacts of emerging contaminants and methods for their identification
- Sensors to monitor water quality
- Digital PCR for monitoring using molecular markers
- Non-target screening and targeted analysis

### 3) Green and nature-based solutions for pollution remediation including bioenergy production

- Green chemistry solutions for water pollution problems
- Bioelectrochemical applications for energy production and waste treatment
- Bioelectrochemical characterization of microorganisms for biocathode and bioanode applications
- Nature-based solutions for pollution remediation
- Bioremediation of emerging contaminants, phyto-assisted bioremediation
- Energetic valorisation of human activities' residual products including pharmaceuticals and other emerging contaminants
- Bioelectrochemical systems (BES), microbial fuel cells (MFCs), microbial electrolysis cells and anaerobic digestion in bioremediation, wastewater treatment, biofuel and biochemical production







## Affiliation of the Academics



**Prof. Maria Letizia Costantini**  
**Prof. Edoardo Calizza**  
*Dep. of Environmental Biology*

**Dr. Anna Barra Caracciolo**  
*Water Research Institute, National Research Council*

**Dr. Giulia Massini**  
**Dr. Antonella Marone**  
*Italian National Agency for New Technologies, Energy  
and Sustainable Economic Development*



*University of Glasgow*  
**Prof. Michelle Bloor**  
*School of Interdisciplinary  
Studies*



*University of Stockholm*  
**Prof. Ann-Kristin E Wiklund**  
**Prof. Rehab El-Shehawy**  
*Dep. of Environmental  
Science*



*University of Bucharest*  
**Prof. Carmen Chifiriuc**  
*Faculty of Biology*  
**Prof. Delia-Laura Popescu**  
*Faculty of Chemistry*  
**Prof. Serban Stamatini**  
*Faculty of Physics*



*University of Makerere*  
**Prof. Godfrey Bwire**  
*School of Public Health,  
Uganda*



*Innovative approaches for  
effective detection and  
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sustainable water  
management*

**Blended Intensive  
Programme**

**Rome  
12-16 June 2023**



## **H<sub>2</sub>O Pollution: holistic approach & nature based solutions**

### **Organizing Committee**

**Coordinator: Maria Letizia Costantini**  
*Department of Environmental Biology*

**Anna Barra Caracciolo**  
*Head of Research Water and Soil Ecology Lab  
Water Research Institute - National Research Council*

**Giulia Massini**  
*Senior Researcher  
Italian National Agency for New Technologies, Energy and Sustainable  
Economic Development*