The 2023 CIVIS Blended Intensive Programme

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

Climate, Environment and Energy HUB
Prof. M.L Costantini Coordinator

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

12-16 June 2023 in Rome

Department of Environmental Biology

JOINT THE EVENT !
SAVE THE DATE !

For Biology, Ecology, Environmental Science, Biotechnology and Chemistry students
Master and Doctoral students

In line with Sustainable Development Goals
# General programme of the BIP

<table>
<thead>
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<th>Time</th>
<th>Monday</th>
<th>Tuesday</th>
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<tr>
<td>9:00 - 11:00</td>
<td>Arrival and registration – Opening session</td>
<td>Learning sessions</td>
<td>Learning sessions</td>
<td>Field training</td>
<td>Project writing session</td>
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<td>11:15 - 13:15</td>
<td>Learning sessions</td>
<td>Learning sessions</td>
<td>Learning sessions</td>
<td>Field training</td>
<td>Project writing session</td>
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<td>14:15 - 16:15</td>
<td>Learning sessions</td>
<td>Workshop</td>
<td>Visit to Stakeholders</td>
<td>Field training</td>
<td>Sum up and feedback</td>
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<tr>
<td>16:30 - 18:30</td>
<td>Learning sessions</td>
<td>Workshop</td>
<td>Visit to Stakeholders</td>
<td>Field training</td>
<td>Closing session</td>
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<td>20:30</td>
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<td>Social event</td>
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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 Microcysts
- 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 emergening 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

Prof. Michelle Bloor
University of Glasgow
School of Interdisciplinary Studies

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

Prof. Carmen Chifiriuc
Prof. Delia-Laura Popescu
Prof. Serban Stamatin
University of Bucharest
Faculty of Biology

Prof. Godfrey Bwire
University of Makerere
School of Public Health, Uganda
Innovative approaches for effective detection and removal of pollutants in sustainable water management

Blended Intensive Programme

Rome
12-16 June 2023

H₂O 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