The 2025 CIVIS Blended Intensive Programme

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

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

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

H₂O Pollution: holistic approach and nature based solutions

27-31 January 2025 in Rome
Department of Environmental Biology

JOIN THE EVENT!
SAVE THE DATE!

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

<table>
<thead>
<tr>
<th>Time</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
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<tbody>
<tr>
<td>9:00 - 11:00</td>
<td>Arrival and registration - Opening session</td>
<td>Field trip</td>
<td>Lab activities in Sapienza</td>
<td>Visit to Stakeholders</td>
<td>Project writing session</td>
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<tr>
<td>11:15 - 13:15</td>
<td>Learning sessions</td>
<td>Field trip</td>
<td>Lab activities in Sapienza</td>
<td>Visit to Stakeholders</td>
<td>Project writing session</td>
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<tr>
<td>14:15 - 16:15</td>
<td>Learning sessions</td>
<td>Field trip</td>
<td>Lab activities in Sapienza</td>
<td>Visit to Stakeholders</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>City tour – water at the ancient Romans’ times</td>
<td>Workshop</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 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
- 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, energy and biochemical production

fieldwork
Affiliation of the Academics

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

Prof. Maria Letizia Costantini  
Prof. Edoardo Calizza  
Prof. Giulio Careddu  
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. Irina Gheorghe-Barbu  
Prof. Ilda Barbu  
University of Bucharest  
Faculty of Biology

Prof. Ella C. Linganiso  
University of Witwatersrand  
South Africa
Innovative approaches for effective detection and removal of pollutants in sustainable water management

Blended Intensive Programme

Rome
27-31 January 2025

H₂O Pollution: holistic approach and 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