

# UrbanWater**SECURITY** ACADEMY

REGIONAL AND GLOBAL CHALLENGES



*Addressing water quality in a changing environment*

PROGRAM

2023

ACADEMY

30 AUG-2 SEP 2023

ATHENS, GREECE

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MEGALOU ALEXANDROU 2, 104 37 ATHENS

# UrbanWaterSECURITY

## ACADEMY

### Director of the Academy



**Prof. Vincenzo Belgiorno**  
University of Salerno, Italy

### Academy Chairs



**Prof. Vincenzo Naddeo**  
University of Salerno, Italy



**Prof. Kwang-Ho Choo**  
Kyungpook National University, KNU,  
South Korea



**Prof. Demetris-Francis Lekkas**  
University of the Aegean,  
Greece

### Honorary Chair



**Prof. Mohammad Taherzadeh**  
University of Borås, Sweden

### Honorary Academic Members



**Prof. Susan Richardson**  
University of South Carolina, USA



**Prof. Dionysios Dionysiou**  
University of Cincinnati, USA



**Prof. Damia Barcelo**  
Inst. of Env. Assessment & Water  
Research, Spain

### Academic Team | In this edition of the Academy the lessons will be taught by the following renowned experts



**Prof. Vincenzo Belgiorno**  
University of Salerno, Italy



**Prof. Demetris Francis Lekkas**  
University of the Aegean, Greece



**Prof. Vincenzo Naddeo**  
University of Salerno, Italy



**Prof. Susan Richardson**  
University of South Carolina, USA



**Prof. Kwang-Ho Choo**  
Professor at Kyungpook National University  
(KNU), South Korea



**Prof. Dionysios (Dion) Dionysiou**  
University of Cincinnati, USA



**Prof. Mohammad J. Taherzadeh**  
University of Borås, Sweden



**Prof. Gerasimos Lyberatos**  
National Technical University of Athens,  
Greece



**Dr. Jean Venables**  
Venables Consultancy, UK



**Prof. Ilias Pechlivanidis**  
Swedish Meteorological and Hydrological  
Institute (SMHI), Sweden



**Dr. Jaroslav Slobodnik**  
Environmental Institute, Slovakia



**Dr. Elisabetta Preziosi**  
CNR-IRSA, Water Research Institute, Italy



**Prof. Damia Barcelo**  
Catalan Institute for Water Research (ICRA-  
Cerca), Spain

## The Academy

The UrbanWaterSECURITY is one of the most important and priority issues to be resolved for both current and next generations. The Waste Management Laboratory of the Department of Environment of the University of the Aegean (Greece) in cooperation with The Sanitary Environmental Engineering Division (SEED) of the University of Salerno (Italy) and the Advanced Institute of Water Industry at Kyungpook National University (Korea) is organizing the second Edition of UrbanWaterSECURITY Academy, that will be held in Athens (Greece) from August 30 to September 02 of this year.

UrbanWaterSECURITY Academy will provide an international platform to share and discuss key topics on such water issues with the presentation of nature-based solutions, advanced technologies, and best practices with the support of the international academy staff from leading Institutions in the World active in this field. An additional aim of the Academy in 2023 is to contribute to the overall goal of enhancing cooperation, integration, and sustainable development in the Euro-Mediterranean region on critical topics of Water and Security.

## Topics of the Academy

Understanding the impacts of urbanisation on the urban water cycle and managing the associated health risks demand adequate strategies and measures. Health risks associated with urban water systems and services include the microbiological and chemical contamination of urban waters and the outbreak of water-borne diseases, mainly due to poor water and sanitation in urban areas, and the discharge as well as the disposal of inadequately treated, or untreated, industrial and domestic wastewater. Climate change only exacerbates these problems, as alternative scenarios need to be taken into consideration in urban water risk management. Topics of interest of the UrbanWaterSECURITY Academy include, but are not limited to the following aspects:

- Nexus framework and governance;
- Environmental technologies for the sustainable development of the water sector;
- Future clean energy technologies and systems under water constraints;
- Implementation and best practices.

## About the Academy

The International Academy in UrbanWaterSECURITY is an intensive training opportunity open to Master's and PhD students, post-docs, and young researchers. Urban Water Security is characterized by complex, so-called wicked, problems where traditional assumptions of causality and predictability may not apply. The fundamental importance of better connections between science, policy and society provides new demands on candidates, who are increasingly expected to possess not only a deep knowledge of their own discipline but are additionally capable of placing that knowledge in a wider understanding of societal needs. To help meet these challenges, the International Academy in UrbanWaterSECURITY has been established. The aim of the Academy is to create a vibrant and intellectually exciting research and development environment at the heart of the institute. The Academy supports the candidates and the institute to contribute to the global challenges for sustainable water use. The Academy is informed by a program committee which includes academic staff from leading institutions and define a program for each edition selecting valuable Academy Members as teachers.

## Edition 2023 - Plan of study

This edition boasts 13 illustrious and prestigious educators, each a global leader in their respective fields. Their insights will shape your perspective and equip you to drive change on a global scale. Step into a world of knowledge across 7 specialized classes comprising 14 enriching lectures. Engage in 3 interactive Class Works that cement your understanding of the subjects. An additional class, featuring 1 lecture made by two top editors, has been thoughtfully added to empower you in conveying your research effectively.

- Class 1 - Introduction to UWS Academy (1 lecture)
- Class 2 - Challenges in urban water security (2 lectures)
- Class 3 - Safety in urban water cycle (1 lecture)
- Class 4 - Circular economy in the water cycle (4 Lectures)
- Class 5 - Frontier topics in urban water security (1 lecture)
- Class 6 - Innovative Approaches to Urban Water Management (3 lectures)
- Class 7 - Emerging contaminants and advanced technologies (2 lectures)
- Extra Class - Effective communication, dissemination, and valorization of innovation and research results (2 lectures)
- N.3 Class Works
- Academy Commencement

## Detailed Program

### 30 August 2023

Time	Room	Activity
14:00	Conference lobby	<b>Welcome and Registration</b>
16:00 - 17:00	Zeus I	<b>Class 1 - Introduction to UWS Academy</b> Director of the Academy prof. Vincenzo Belgiorno  Founder of UWS and Chair of the Academic Council prof. Vincenzo Naddeo  Academy Chairs prof. Demetris Francis Lekkas and prof. Kwang-Ho Choo  Honorary Chair prof. Mohammad Taherzadeh
17:00 - 17:30	Conference lobby	<b>Welcome Break</b>
17:30 - 18:30	Zeus I	<b>Opening Ceremony</b>
18:30 - 19:15	Zeus I	<b>Class 2a - Challenges in urban water security</b> Sustainable Water Management: Global and Regional Challenges and Opportunities  prof. Dionysios (Dion) Dionysiou University of Cincinnati, USA
19:15 - 19:45	Zeus I	<b>Class 2b - Challenges in urban water security</b> New challenges for water and wastewater infrastructures  prof. Vincenzo Belgiorno University of Salerno, Italy



## Detailed Program

31 August 2023

Time	Room	Activity
10:30 - 11:00	Zeus I	<p><b>Class 3 - Safety in urban water cycle</b></p> <p>Improving Drinking Water Safety: Addressing New Impacts and Identifying Important Toxicity Drivers</p> <p>prof. Susan Richardson University of South Carolina, USA</p>
11:00 - 11:30	Conference lobby	<b>Coffee break</b>
11:30 - 12:00	Zeus I	<p><b>Class 4a - Circular economy in the water cycle</b></p> <p>Paradigm shift from waste and wastewater treatment to Resource Recovery</p> <p>prof. Mohammad J. Taherzadeh University of Boras, Sweden</p>
12:00 - 12:30	Zeus I	<p><b>Class 4b - Circular economy in the water cycle</b></p> <p>Combined management of food waste and municipal wastewater</p> <p>prof. Gerasimos Lyberatos National Technical University of Athens, Greece</p>
14:00 - 15:30	FOS Restaurant	<b>Lunch break</b>
15:30 - 16:00	Zeus I	<p><b>Class 4c - Circular economy in the water cycle</b></p> <p>Valuing water for a Blue Circular Economy: advanced technologies for turning wastewater treatment plants into sustainable biorefineries</p> <p>prof. Vincenzo Naddeo University of Salerno, Italy</p>
17:30-17:45	Conference lobby	<b>Coffee break</b>
17:45 - 18:30	Zeus I	<p><b>Class Work #1</b></p> <p>Moderators: prof. Vincenzo Belgiorno, prof. Kwang-Ho Choo, prof. Demetris Francis Lekkas, prof. Vincenzo Naddeo</p> <p>Tests on the lectures (Classes from 1 to 4) made by: prof. Dionysios (Dion) Dionysiou, prof. Vincenzo Belgiorno, prof. Susan Richardson, prof. Mohammad J. Taherzadeh, prof. Gerasimos Lyberatos, prof. Vincenzo Naddeo</p>
18:30-19:30	Zeus I	<p><b>Extra Class - Effective communication, dissemination, and valorization of innovation and research results</b></p> <p>An Editor's Perspective on the Publication Process in an Evolving Era: Insights and New Developments</p> <p>prof. Dionysios Dionysiou and dr. Polycarpus Falaras</p>

## Detailed Program

01 September 2023

Time	Room	Activity
10:30 - 11:00	Zeus I	<p><b>Class 5 - Frontier topics in urban water security</b> Bacterial Battle: Unleashing Nature's Mediators to Combat Biofouling</p> <p>prof. Kwang-Ho Choo Kyungpook National University (KNU), South Korea</p>
11:00 - 11:30	Conference lobby	<b>Coffee break</b>
11:30 - 12:00	Zeus I	<p><b>Class 6a - Innovative Approaches to Urban Water Management</b> Improving the utilization of rainwater and effluent in urban areas</p> <p>dr. Jean Venables Venables Consultancy, UK</p>
13:00 - 13:15	Zeus I	<p><b>Class 6b - Innovative Approaches to Urban Water Management</b> A comprehensive monitoring approach to evaluate the impact of an urban landfill on a naturally reducing aquifer</p> <p>dr. Elisabetta Preziosi CNR-IRSA, Water Research Institute, Italy</p>
14:00 - 15:30	FOS Resturant	<b>Lunch break</b>
15:30 - 16:00	Zeus I	<p><b>Class 6c - Innovative Approaches to Urban Water Management</b> Customizing global hydrological models for local applications: It is not only about informative data</p> <p>Prof. Ilias Pechlivanidis SMHI, Sweden</p>
18:00 - 19:00	Athena II	<p><b>Class Work #2</b></p> <p>Moderators: prof. Vincenzo Belgiorno, prof. Kwang-Ho Choo, prof. Demetris Francis Lekkas, prof. Vincenzo Naddeo</p> <p>Tests on the lectures (Classes 5 and 6) made by: prof. Kwang-Ho Choo, dr. Jean Venables, dr. Elisabetta Preziosi, prof. Ilias Pechlivanidis</p>



## Detailed Program

02 September 2023

Time	Room	Activity
09:00 - 09:30	Hera I	<p><b>Class 7a - Emerging contaminants and advanced technologies</b>            Next generation environmental monitoring data for chemicals management: the NORMAN approach</p> <p>dr. Jaroslav Slobodnik            Environmental Institute, Slovakia</p>
10:30 - 11:00	Zeus I	<p><b>Class 7b - Emerging contaminants and advanced technologies</b>            High-Resolution Mass Spectrometry Proteomics in Wastewater-based Epidemiology: Discovery of large biomolecules as biomarkers of population and industrial activities</p> <p>prof. Damia Barcelo            Catalan Institute for Water Research (ICRA-CERCA), Spain</p>
11:00 - 11:30	Conference lobby	<b>Coffee break</b>
14:00 - 15:00	Athena II	<p><b>Class Work #3 and Academy Commencement</b></p> <p>Moderators:            prof. Vincenzo Belgiorno, prof. Kwang-Ho Choo, prof. Demetris Francis Lekkas, prof. Vincenzo Naddeo</p> <p>Tests on the lectures (Class 7) made by:            dr. Jaroslav Slobodnik, prof. Damia Barcelo</p>
17:30-18:30	Zeus I	<b>Closing Ceremony</b>



# UrbanWaterSECURITY ACADEMY

Addressing water quality in a changing environment

## Host Organizer



UNIVERSITY OF THE  
AEGEAN

## Co-organizers



UNIVERSITÀ DEGLI STUDI  
DI SALERNO



SEED



## Under the auspices of



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