

AUA-NU OVERSEAS STUDY PROGRAM (ONLINE)

Water Resources Policy and Management

Host: Nazarbayev University (Kazakhstan, Nur-Sultan city)

Date: October 5 - December 7, 2022

The course accentuates the role of water resources policy and management by focusing on the Central Asia region with a comparative analysis to South/Southeast Asia regions. The fundamentals of the water cycle are discussed while the concept of integrated water resources management and river basin allocation will be presented.

The economic implications of direct and indirect water use are elaborated, while an introduction is given to hydro-economic modelling and decision support tools. Attention is paid to the transboundary water systems of Central and South/Southeast Asia and the implications of the water-energy-food nexus in the relevant regions.

The course aims to provide insight into the physical and social dimensions of water resources policy and management; offer a better understanding of the effects of freshwater systems on human livelihoods, and enhance the policy dialogue on the better use of transboundary water networks.

The course will last for 30 hours and be delivered online in 10 sessions of 3-hours each, by encouraging participants' active involvement through discussion groups to develop national and regional water policy and management plans.

Instructors of the Program:

Stefanos Xenarios

Associate Professor and Vice Dean for Research, Graduate School of Public Policy

Professor Xenarios is an environmental economist by training with a focus on water resources and climate change aspects. He initially acquired a 3-years of postdoctoral experience in India and Ethiopia as a staff member of the International Water Management Institute (IWMI). Subsequently, Stefanos did research on climate change and agriculture in South Asia, based at the Norwegian Institute of Bioeconomy (NIBIO), and worked as Head of the Water and Energy Security Unit at the Organization for Security and Cooperation in Europe (OSCE) Office in Tajikistan. He further became a Senior Researcher in the University of Central Asia in Kyrgyzstan leading activities on water-energy-food and environment nexus in the region while in May 2018 he was

appointed as Associate Professor in the Graduate School of Public Policy in Nazarbayev University based in Kazakhstan. Since January 2020 he has been an Adjunct Senior Research Fellow in the Institute of Water Policy, at the National University of Singapore. He is in the Editorial Board of the International Journal of Water Resources Development, Hydrology Research Journal, World Development Sustainability, and the Central Asian Journal of Water Research, while he is in the Management Board of the International Water Association's Specialist Group on Statistics and Economics.

Marzhan Baigaliyeva

Postdoctoral scholar, School of Mining and Geosciences

Marzhan Baigaliyeva is a Postdoctoral scholar at NU School of Mining and Geosciences. Marzhan received her master's degree from University College Dublin in 2013, and graduated from The University of Nottingham with a PhD in Geographical Information Science in 2021. Marzhan is an awardee of the "Bolashak" International Scholarship and "Talap" scholarship provided by the Nazarbayev University.

Research interests:

- Regional and catchment-scale hydrology;
- Potential impacts of climate change on regional-scale hydrology and water resources;
- Water scarcity and water availability in Central Asia;
- Remote sensing and GIS techniques in hydrology and climate assessment.

Expected outcomes:

By the end of the course, the participants will be expected:

- To understand the concept of integrated water resources management (IWRM) through an inter-disciplinary approach;
- To apply holistic conceptual frameworks for the development of better water resources management and policy decisions;
- To interpret the complexities of transboundary water systems into policy frameworks.

Registration criteria

1. Each AUA member institutions to nominate **3 students** (undergraduate and/or postgraduate). Each member university is also welcome to nominate up to one student on the waiting list. In the event that there are unused quotas from other universities, the students on the waiting list have a chance to get admitted to the program.

2. Completed forms of the nominated students should be sent to damira.manakbay@nu.edu.kz **no later than September 30, 2022 (Friday)**. Kindly note that self-nominations are not accepted.

3. For any further information regarding the program, the institutions or nominees may reach the organizers via email at damira.manakbay@nu.edu.kz and arailym.taibassarova@nu.edu.kz Contact persons: Ms. Damira Manakbay and Ms. Arailym Taibassarova, Managers of the Office of the President.

Schedule of the Program

Session	Date	Topics	Instructor
Week 1	October 5	Introduction to the Course Foundations of Water Resource Management and Policy, Water Cycle, Water Systems and Basin Approaches, Asian and Central Asian Water Challenges	Stefanos Xenarios Marzhan Baigaliyeva
Week 2	October 12	Water Governance and Institutional components Water actors on Local, National and International level, legislative context, Water Sector Reforms	Stefanos Xenarios
Week 3	October 19	Integrated Water Resources Management (IWRM) scenarios and planning Introduction to IWRM concept and principles, Planning processes and Tools, Water Management Strategies	Stefanos Xenarios
Week 4	October 26	Basin Management and Planning Water source, water loss, water balance approach and and basin analysis	Marzhan Baigaliyeva
Week 5	November 2	The role of economics in water management Water pricing, Full cost Recovery Principle, Externalities, Taxation, Standards and Tradable Permits	Stefanos Xenarios
Week 6	November 9	Groundwater Use and Water Quality Groundwater management and planning, water quality objectives and requirements, water contamination, water pollutants and sources.	Marzhan Baigaliyeva

Week 7	November 16	Transboundary water systems and Water Security Successful and unsuccessful examples of water management in Central Asia and South/Southeast Asia	Stefanos Xenarios
Week 8	November 23	Agricultural water use and policy implications Freshwater and Groundwater Use, Water Productivity, Irrigation systems, Soil and water conservation	Stefanos Xenarios
Week 9	November 30	Water Systems and modelling approaches Hydrology and modelling, GIS and remote sensing techniques	Marzhan Baigaliyeva
Week 10	December 7	Water resources and Climate Climate and water resources; climate variability and change in Asia; Natural hazards and water resources	Marzhan Baigaliyeva