

Campus green spaces, Universidad ORT Uruguay.

6 CLEAN WATER AND SANITATION

SUSTAINABLE DEVELOPMENT GOAL 6

Clean Water and Sanitation

Water quality and the sustainable use of water resources are addressed through biotechnology research on effluent treatment, environmental economics research on groundwater, and courses that teach water footprinting and bioremediation.

2

research lines on effluent treatment and sustainable groundwater use

5

courses mapped to SDG 6, including Bioremediation

14 of 16

classes of an enzymology lab devoted to cutting water use in detergents

TEACHING & LEARNING

Bioremediation

A mandatory Biotechnology course on biological systems for treating effluents and restoring ecosystems, covering waste management, water resources and the circular economy.

Greener cleaning

In the Enzymology Laboratory, students develop a biotechnological product to reduce the water and surfactants needed by industrial, hospital, hotel and household detergents, working on green chemistry across 14 of 16 classes.

Water footprint and certification

Environmental Aspects in Engineering (water and carbon footprints) and, in the Diploma in Sustainable Architecture, Energy Certification of Buildings and Sustainable Design and Construction 1–3 (water and resilience).

RESEARCH & INNOVATION

Algae consortia for industrial effluents

An ANII María Viñas Fund project evaluates algae-algae and algae-fungi consortia to remove nitrogen and phosphorus from industrial effluents and promote circularity in production processes (lead: Dr. Mariana Umpiérrez, 24 months).

Sustainable groundwater use

Facundo Danza's paper "Optimal and Sustainable Groundwater Use: Evidence from Nebraska" received a special mention in the 12th National Economics Prize Prof. Raúl Trajtenberg, and was presented at the first congress of the Latin American Association of Environmental and Natural Resource Economists (LAERE 2025).

Water-energy disclosure

Research presented at the American Accounting Association Annual Meeting 2025 analysed the quality of water-energy disclosures in Latin American capital markets.

COMMUNITY & PARTNERSHIPS

Irrigation knowledge for the agricultural sector

Economics research on supplementary irrigation was shared with producers and the public through a column in Forbes Uruguay. facs.ort.edu.uy/novedades/riego-suplementario-estrategia-clave-para...

Water-quality monitoring in a secondary school

Within Projects for Peace 2025, Biotechnology Engineering students taught water-quality monitoring and microalgae cultivation at Instituto Adventista del Uruguay, using the school's artificial lake as a learning setting, and left the laboratory equipment at the school. fi.ort.edu.uy/novedades/estudiantes-acercaron-la-investigacion-a-la...

5 course offerings linked to SDG 6 in 2025

- Biorremediación (Engineering)
- Laboratorio de Enzimología (Engineering)
- CERTIFICACIONES ENERGÉTICAS EN EDIFCIOS (Architecture)
- DISEÑO Y CONSTRUCCIÓN SOSTENIBLE 1, 2 Y 3 (Architecture)
- Aspectos Ambientales en Ingeniería (Engineering)

Biotechnology for cleaner water



Laboratory work at the Faculty of Engineering (illustrative image from the 2025 Yearbook).

Nitrogen and phosphorus in industrial effluents contribute to the eutrophication of rivers and reservoirs. With the ANII María Viñas Fund, Dr. Mariana Umpiérrez leads a 24-month project evaluating consortia of algae with algae and of algae with fungi to remove these nutrients and turn effluents into resources, promoting circularity in production.

The same group published in Environmental Toxicology and Chemistry a study on the uptake and transformation of arsenic by Acidomyces acidophilus, a fungus isolated from acidic mine tailings, contributing to the understanding of bioremediation of contaminated waters.

Teaching connects this research with future professionals. Bioremediation, a mandatory course in Biotechnology, covers biological systems to treat effluents and restore ecosystems; in the Enzymology Laboratory, students spend 14 of 16 classes designing a biotechnological product to cut the water and surfactants needed for industrial, hospital, hotel and household washing; and Environmental Aspects in Engineering teaches water-footprint accounting.

In economics, Facundo Danza's research on optimal and sustainable groundwater use received a special mention in the National Economics Prize Prof. Raúl Trajtenberg and was presented at the first congress of the Latin American Association of Environmental and Natural Resource Economists in Bogotá.

SELECTED 2025 PUBLICATIONS AND PRESENTATIONS BY ORT FACULTY

1. Danza, F. (2025, 19-21 de marzo). Optimal and sustainable groundwater use: Evidence from Nebraska. [Presentación de artículo]. First Congress of the Latin American Association of Environmental and Natural Resource Economists (LAERE 2025), Bogotá, Colombia.
2. Nuñez Laguna, I., Gambetta, N., & García Benau, M. A. (2025, 2-6 de agosto). Boardroom diversity as a catalyst for water-energy disclosure quality: Evidence from Latin American capital markets. [Presentación de artículo]. American Accounting Association Annual Meeting 2025, Chicago, Estados Unidos.
3. Umpiérrez Failache, M., Rahim, A. A., Betancor, L., & Ghoshal, S. (2025). Uptake and transformation of Arsenic by Acidomyces acidophilus isolated from acidic mine tailings and its toxigenic implications. Environmental Toxicology and Chemistry, 12 p.