



Ollscoil Chathair  
Bhaile Átha Cliath  
Dublin City University



# INTRA Programme BSc Environmental Science and Technology

## Overall Objective

Climate change, species extinction, pollution, managing waste and recycling are huge challenges that we face and are now at the forefront of public discourse and debate. These are complex phenomena that we must understand in order to address. Environmental scientists are needed to provide technical solutions and advanced innovations through the application of chemistry, physics and biology. This degree explores the environment, the technologies used for its analysis, and how it is impacted by our activities from a scientific perspective. Students will consider and probe the problems we face and investigate means for reducing our negative impact on the environment.

## Programme Outline

This is a four-year full-time degree course. The four years are broken down as follows:

- **Year One:** learning and developing essential background knowledge of mathematics, chemistry, physics and biology
- **Year Two:** building on the four areas of study in year one from an environmental viewpoint, as well as developing IT and computing skills. Modules include Microbiology and Genetics, Pollution and Biosphere, Water Chemistry and Environmental Analysis

- **Year Three:** Climate Change science is introduced, and the study of climate is encouraged through field work and modules such as Environmental Monitoring & Data Analysis. Students continue to develop in environmental aspects of biotechnology, chemistry and physics. Modules include Atmospheric and Aquatic science and students can work on a paid work (INTRA) placement. This placement can be anywhere that is environmentally relevant. Practical work is conducted in laboratories and through onsite and field trip visits
- **Year Four:** Specialised modules include Toxicology, Meteorology, Renewable Energy, Soil and Waste Management. Additionally, students will carry out a semester-long research project, with environmentally relevant topics offered from across the entire Science and Health faculty

Please see following page for relevant Work Areas.





## Work Areas

The potential careers in environmental science and technology are diverse. The following are just some examples:

- Any area of environmental research, e.g. global warming, local or regional air, water and soil pollution in universities, public bodies such as the County Councils and industry
- Environmental protection roles in industry such as pharmaceutical, manufacturing, semi-conductor, the County Councils, the Environmental Protection Agency (EPA) and consultancy companies
- Waste management roles
- Water protection and wastewater treatment in public bodies and private consultancy companies
- Environmental analytical roles
- Environmental advocacy
- Parks and Wildlife officer in, for example the National Parks and Wildlife Service
- The marine industry

- Research funding bodies
- Green Economy
- The agricultural industry, e.g. environmental officer

## Student Availability


Students are required to complete a six month placement at the end of third year from April - September. Students are available for interview from early October onwards. For further information, please contact:

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 [dcu-intra-office](https://www.linkedin.com/company/dcuietra)

Year 1	Year 2	Year 3	Year 4
Biology	Probability and Statistics	Field trip	ESH Literature review
Chemistry	Physics Labs	Environmental Legislation, Health and Safety	Environmental Ethics
Physics	Programming	Environmental Monitoring and Data Analysis	Project
Mathematics	Pollution and the Biosphere	Biochemical and microbiological analysis	Environmental Toxicology
Computing	Microbiology and Genetics	Environmental Biotechnology	Physics of Renewable Energy
	Biotechnology labs	Aquatic and Atmospheric chemistry	Environmental Organic Chemistry
	Chemistry labs	Chemistry labs	Advanced Analytical Applications
	Visualisation and Validation of Lab data	Separation Techniques	Soil, waste and Energy
	Kinetics and Thermodynamics	INTRA	
	Environmental Analysis	Modelling with differential equations	
	Atmospheric Physics		