COASTAL RESILIENCE SCHOOL

Sustainable Coastal Growth and Resilience (Co-Growth)

Coastal Resilience School, 2025 Course
Decade Collaborative Centre for Coastal Resilience
OceanTeacher Global Academy - OTGA/IOC

Overview

From Jan 27, 2025 **To** Apr 11, 2025

This **hybrid course** on **coastal resilience** offers advanced training tailored for **post-graduate** and **early-career professionals**, including scientists, consultants, and environmental agencies, to address modern coastal challenges.

Combining a **10-week virtual** component hosted by the **OceanTeacher Global Academy (OTGA)** with an **in-person session** in Bertinoro, Italy, it balances theoretical and practical learning.

The online phase provides deep theoretical insights and interactive sessions, while the final in-person week (April 7-11, 2025) allows participants to apply their skills in real-world settings and network with field experts.

Free of charge. Travel and accommodation costs for the in-person week will be covered by the Decade Collaborative Centre for Coastal Resilience.

Participants who successfully complete the course will be awarded an ISO-compliant professional certification issued by OTGA-IOC.

Who is the course for?

- **Early Career Ocean Professionals**
- **Scientists and Researchers**
- **Professionals involved in coastal management and conservation**

How to apply

From Nov 15, 2024 **To** Dec 15, 2024

Interested candidates must **submit their application online via this link**.

Pre-requisites

- Master's degree in environmental sciences, marine biology, coastal engineering, urban planning, political sciences, international affairs, economics and business
- 1-5 years of relevant work experience in coastal management, environmental consulting, urban planning, marine conservation, or related fields
- Basic computer skills and experience in working in a digital learning environment
- Proficiency in written and spoken English

Course structure

Timeline

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Module 1		Module 2		Module 3	
Platform Lessons	Homework Week - Webinar & Tutorship	Platform Lessons	Homework Week - Webinar & Tutorship	Platform Lessons	Homework Week - Webinar & Tutorship
Online					

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Workshop
In Bertinoro</td></tr>
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Each module is composed by an online course week followed by a dedicated week for study, practical exercises, and tutoring sessions and live webinar (recorded for later access).

The **online course week** includes two-hour daily lessons provided on the OTGA Platform. Lessons are **accessible at any time of day** to accommodate students' schedules.

Weeks	Subject	Description
MODULE 1 **Week 1 - 2** From **January 27** to **February 7**	**Overview of Coastal Resilience and its importance for business**	This module introduces the concept of coastal resilience, which refers to the ability of coastal areas and their communities to adapt to changing conditions, withstand disruptions, and recover quickly. The approach emphasizes the importance of fostering responsibility within the business sector to build physical and financial resilience, while also ensuring the presence of a robust public emergency management system, including early warning mechanisms.
MODULE 2 **Week 3 - 4** From **February 10** to **February 21**	**Understanding coastal hazards from operational oceanography products**	This module showcases innovative coastal management scientific data available from open-source repositories. It will demonstrate observational and model data along with their key features. Instructors will guide each student in accessing a cloud environment where prepared Python notebooks will be provided, enabling exercises to extract time series and visualize various fields (e.g., waves, sea level, currents, temperature, salinity, chlorophyll). Each student will be tasked with downloading specific data fields for a designated coastal area of interest, approximately 200x200 km^2. More advanced students will also be introduced to coastal hazard mapping using the same data for their selected region.
MODULE 3 **Week 5 - 6** From **February 24** to **March 7**	**Impact Assessment and risk management**	Developments to the coastline can have an impact on the coastal environment. Environmental Impact Assessments need to be undertaken, as best practice or as part of governmental processes. This module introduces Environmental Impact Assessments as part of the coastal resilience agenda. It also explores the management of flood and coastal erosion risk, in the same context.
MODULE 4 **Week 7 - 8** From **March 10** to **March 21**	**Enabling technologies**	Sustainable coastal growth and resilience is enabled by set of technologies. Some are well established and others leading edge. This module explores five, key enabling technologies: Informatics, Artificial Intelligence (AI), Geographic Information Systems (GIS), data assimilation and Satellite Earth Observations (SatEO). The general concepts of these key enabling technologies will be explored, together with particular applications in coastal sustainability.
MODULE 5 **Week 9 - 10** From **March 24** to **April 4**	**Solutions for coastal resilience**	As coastal communities face increasing challenges from climate change, sea-level rise, and extreme weather events, the need for innovative and sustainable solutions has never been more critical. This module is designed to equip participants with the knowledge and skills required to develop effective strategies for enhancing coastal resilience for some specific critical infrastructures: (Sustainable ports, Mariculture, Costal cities, Coastal protection...). For each infrastructure the students with the teacher will examine various approaches to building resilience.
MODULE 6 **Week 11** From **April 7** to **April 11**	**In Person Workshop**	During the in person week in Bertinoro (Italy), each participant will work individually on their final project proposal. This project is an opportunity to apply the concepts, tools, and methodologies the participant has learned during the course to a real-world problem related to coastal resilience. On the last two days, each participant will present their project proposal to the group and the course directors, lecturers and peers to find commonalities, receive feedback and discussion.

The Primary Objectives

- **Understand Coastal Resilience and its Business Implications**
- **Utilize Operational Oceanography Products for Hazard Analysis**
- **Assess Environmental Impact and Manage Coastal Risks**
- **Apply Enabling Technologies to Coastal Resilience Challenges**
- **Develop practical Resilience Solutions for Critical Coastal Infrastructure**
- **Showcase Innovative Solutions Executing a Real-World Coastal Resilience Project**

Directors

Nadia Pinardi

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Floods and Water Management in Floods and Water Management group

Organizers

Decade Collaborative Center for Coastal Resilience, Department of Physics and Astronomy, University of Bologna with the support of OceanTeacher Global Academy (OTGA) and the CINECA Interactive Computing Services.

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