

## **Introduction to Climate Change and Carbon Storage**

### **Course Description**

In this introductory-level online course, students explore the many facets of Carbon Storage and Climate Change through innovative, documentary style media. This includes topics such as Carbon Cycle in the environment, Ocean Acidification, Coral Reef Bleaching and the cutting-edge research targeting to assist the survival of Coral Reefs in a rapidly changing climate.

This course is a part of a larger groundbreaking introductory online course about Ocean Health that is produced professionally in ten international locations and in nine modules (Biodiversity, Climate Change and Carbon Storage, Coastal Protection, Clean Waters, Artisanal Fisheries, Port Economies and Livelihoods, Food Provision and Commercial Fishing, Ecotourism, Iconic Species and Natural Products) where highly distinguished marine scientists around the world use case studies and stories, , above and under water, from field locations to teach fundamental ocean science principles while sharing real-life challenges associated with working with stakeholders and balancing the needs of resource consumption and conservation.

### **Course Teaching Objectives**

- Introduce students to the process in which carbon, as the chemical backbone of life on Earth, continually travels from the atmosphere to the Earth and then back into the atmosphere in order to regulate the Earth's temperature.
- Challenge students to better understand the critical role of oceans to counteract the uneven distribution of solar radiation reaching Earth's surface and therefore regulating global climate.
- Assist students to explore how Coral reefs provide an important ecosystem for life underwater, protect coastal regions and provide a crucial source of income for millions of people, and how they are alarmingly at risk due to climate change and warming of the oceans.
- Encourage students to reflect on promoting sustainable practices and making informed choices concerning environmental issues.

### **Course Learning Objectives**

Students who complete this course will be able to meet the following content-based expectations:

- Summarize interactions between humans and climate in marine environments by successfully completing the Course Material, the Unit Test, Virtual Field Experiences, the Reflection Assignments, Further Explorations and the Final Capstone Project.
- Articulate how large-scale commerce and human practices impact chemical processes in the oceans and carbon fixation factors.
- Explore the biology of Coral Reefs, Dinoflagellates, Coral Symbionts and Coral Morphology.
- Assess the ways that personal lifestyle decisions impact marine environments.