

CFA1.1 Course Title: The role of global change in the alteration of biogeochemical cycles

Modality: Advance Training Course

Dates: September 24th-28th 2018

Timetable: 12:00 -14:00 and 16:00-18:00

Duration:

Lectures: 20h

Laboratory: **one day field trip in Ría de Vigo.**

Location: DOMAR Videoconference room TORRE-CACTI Building, Campus As Lagoas-Marcosende, University de Vigo

Academic coordinators:

Name	Institution	e-mail
Carmen González	Instituto de Investigaci3n Mariñas (CSIC)	cgcastro@iim.csic.es
Joao Serodio	Universidade de Aveiro	jserodio@ua.pt

Lecturers:

Name	Institution	e-mail
Jorge Corredor	Universidad de Puerto Rico	jorge.corredor@upr.edu
María Froján	Instituto de Investigaci3n Mariñas (CSIC)	mariafrojan@iim.csic.es
Diana Zúñiga García	Instituto de Investigaci3n Mariñas (CSIC)	dianazuniga@iim.csic.es

General description:

The course is focused on the most relevant oceanic biogeochemical processes that are modified by global change. The course studies the biogeochemical cycles of carbon, nitrogen, phosphorous and silicon with a focus on understanding the consequences of rising atmospheric CO₂ and climate change. Changes in ocean biogeochemistry seem to be the most significant in terms of their potential impacts on marine life, particularly in coastal ecosystems. Particularly emphasis will be placed on ocean acidification and the interplay between nutrient biogeochemistry and ecosystem functioning.

Contents:

1. Marine biogeochemical cycles
 - Carbon and carbonate cycles
 - The nitrogen, phosphorus and silicon cycles
 - Biogeochemical cycles and productivity and diversity of ecosystems

2. Interactions with environmental changes
 - Modes of natural variability and anthropogenic forcings
 - Anthropogenic CO₂ and oceanic acidification
 - Effects of climate change on the biological pump

Teaching methodologies:

Lectures, participative debates and practical exercises. There will be one field trip to a mussel raft area in Ría de Vigo.

Evaluation system:

Attendance and participation in the scheduled sessions. The students will have to complete a series of practical exercises.

Brief CV of the lecturers:

Dr. Jorge Corredor

Dr. J.E. Corredor has been full professor of the Marine Sciences Department of University of Puerto Rico – Mayaguez (UPRM). At present Dr. Corredor is retired since June 2016. Dr. Corredor has a Bachelor's degree in Biology (Universidad de Los Andes, Colombia, 1969), a M.Sc in Biogeochemistry (University of Wisconsin, USA, 1972) and Ph.D. in Oceanography (University of Miami, RSMAS, USA, 1978). He was director of UPRM Department of Marine Science (1993 -1994 and 2014 – 2015), associate director of the Caribbean Coastal Ocean Observing System (2008- 2014), programme officer of United Nations Environment Programme, Oceans and Coastal Areas in Nairobi (Kenya, 1991). Dr. J.E: Corredor has been member of several Scientific Committees and Directors Board; Committee on the Development of an Integrated Science Strategy for Ocean Acidification Monitoring, Research, and Impacts Assessment – US National Research Council (2008 – 2009), Ocean Studies Board- U.S. National Academies (2007-2012), CariCOOS Inc. (2015 – 2016), Governing Committee – US IOOS Association (2006 – 2014), Puerto Rico Climate Change Council (2010 – present) and Puerto Rico South Coast Harbor Safety and Security Committee (2011- present).

Dr. Diana Zúñiga

Dr. D. Zúñiga is a postdoctoral researcher in the Oceanography Department of Instituto de Investigaciones Marinas (IIM – CSIC, Spain). She has a Bachelor degree in Marine Sciences (Universidade de Vigo, 2000) and a PhD in Marine Sciences (Universitat de Barcelona, 2007). Dr. D. Zúñiga has participated in several national and international projects, published more than 20 articles in ISI journals and supervised a PhD Thesis and two MsC Theses.

Dr. M. Froján

Dr. M. Froján is a postdoctoral researcher in the Oceanography Department of Instituto de Investigaciones Marinas (IIM – CSIC, Spain). She has a Bachelor degree in Marine Sciences (Universidade de Vigo, 2007), a MSc in Oceanography (Universidade de Vigo, 2012), and a PhD in Oceanography (Universidade de Vigo, 2016). Dr. M. Froján expertise is focused on plankton marine ecology with several ISI manuscripts published in this subject.

Dr. João Serodio

Assistant Professor of the Department of Biology, University of Aveiro, and the head of the Primary Productivity Laboratory of CESAM. Bachelor's degree in Biology (University of Lisbon, 1989), MSc. in Probability and Statistics (University of Lisbon, 1993), PhD. in Biology (Ecology and Biosistematics; University of Lisbon, 1999). Habilitation ('Agregação') in Biology (University of Aveiro, 2016). Principal Investigator of one European project (FP7) and four national (FCT) projects. Participation in various international and national projects as team member. Author of 80 ISI papers, 55% on JSR top 1st quartile. h-index 23 and 1500+ citations. 75 communications in international meeting, 15 as invited speaker. First author of one national patent. Reviewer of 95 articles for 45 international journals. Member of evaluation panels of two FCT scholarship calls (post-doctoral and PhD) and bilateral projects. Member of evaluation panels of research projects submitted to funding agencies of Canada, the Netherlands, Belgium and France. Supervision of 8 post-docs (5 concluded), 7 PhD (5 concluded) and 10 MSc. Has participated in the teaching of 25 courses (Bachelor and MSc), being coordinator of 8, mainly in the areas of Plant Physiology, Ecology and Biological Oceanography. Director of the Master Course in Applied Biology (2011-2018) and in Marine Biology (2013-2016).

Dr. Carmen G. Castro

Dr. C. G. Castro is a researcher in the Oceanography Department of Instituto de Investigaciones Marinas (IIM – CSIC, Spain). She has a Bachelor degree in Chemistry (Universidade de Santiago de Compostela, 1991) and a PhD in Chemistry (Universidade de Santiago de Compostela, 1997). Her research interest is focused in Marine Biogeochemistry of coastal upwelling ecosystems. Dr. C.G. Castro has participated in several, national and international projects, being principal investigator of 10 national projects, and published more than 60 articles in scientific journals. She has been supervised 3 successful PhD and 6 MSc Thesis.