

GLOMAR Introductory Course:

“Natural Sciences for Social Scientists”

Dr. Ulrike Holzwarth, Dr. Leticia Cotrim da Cunha, Dr. Martina Loebel

GLOMAR – Bremen International Graduate School for Marine Sciences, University of Bremen

12-14 October 2011, MARUM Bremen

Objectives

This three-day introductory course is particularly addressed at PhD students from the social sciences. This course will offer a basic introduction and overview of the physics, biology, climate change and biogeochemistry within the marine realm and provide social scientists with the necessary skills to efficiently communicate and eventually collaborate with their fellow PhDs and other colleagues of the natural sciences within the interdisciplinary context of GLOMAR.

The course starts with a survey on the different disciplines of marine and climate sciences and how they are connected to each other.

The oceanography and paleoceanography part will address basic physical principles that are required to understand the global ocean circulation in the present and past. We will discuss the upwelling principle, the thermohaline circulation, wind driven currents as well as climate modes the El Niño Southern Oscillation. In a second step we will learn how the oceanographic conditions of the past changed over time and how they can be reconstructed. This also includes a visit of the core repository at the MARUM where the sediment cores as archives for past climate conditions are investigated.

The first part of the biological oceanography lecture will be devoted to marine ecosystems covering the wide spectrum from unicellular plankton to whales and how ecosystem processes are ultimately linked to biogeochemical cycles. The second part of the lecture will concentrate on human exploitation (in particular fisheries) of the marine realm and illustrate some examples that could mitigate some of the human-induced damage (e.g. Marine Protected Areas, iron fertilization).

The climate change and marine biogeochemistry part will introduce the definitions of climate change and its evidence from observations. We will focus on climate change effects on coastal and marine systems, and how the emitted CO₂ causes irreversible changes in the climate and in ocean chemistry (including ocean acidification).

Topics

Wednesday: Ulrike Holzwarth – *Physical Oceanography and Paleoceanography*

Thursday: Martina Loebel – *Marine Ecology and Biogeochemistry*

Friday: Leticia Cotrim da Cunha – *Climate Change*

Course schedule

Wednesday to Friday: 9:00 – 12:30 (two lectures of 1.5 hours with coffee break)

Location

MARUM, University of Bremen, Leobener Strasse, 28359 Bremen, Germany
Room 2070

To subscribe

Please send a mail to Christina Klose (glomar-courses@marum.de). Please give your name, status (PhD student, Postdoc or Master Student), institute / university and research area / working group as well as your field of study.