

**Course title: Marine and Coastal Ecosystem Services From Mapping to Modelilng**

**Modality: CFA- Advance Training Course**

**Orientation:**

- Ocean Observation and Global Change
- Sustainable use of Marine Resources
- Integral Management of the Sea
- Technological progress. Engineering and Business Management

**Dates: 14-16 th November 2022**

**Timetable: 09:00-12:30h / 14:30-17:30h (Portuguese time) //10:00-13:30 h/ 15:30-18:30h (Spanish time)**

**Duration: 20h**

**Location: Universidade de Trás-os-Montes e Alto Douro (UTAD)**

**(Online or in presence)**

**Language: English**

**Academic coordinators:**

Name	Institution	e-mail
Edna Cabecinha	UTAD (Pt)	edna@utad.pt
Ferdinando Villa	BC3 (Es)	ferdinando.villa@bc3research.org

**Lecturers:**

Name	Institution	e-mail
Edna Cabecinha	UTAD (Pt)	edna@utad.pt
Ferdinando Villa	BC3 (Es)	ferdinando.villa@bc3research.org
Alessio Bulckaen	BC3(Es)	alessio.bulckaen@bc3research.org
Simone Varandas	UTAD (Pt)	simonev@utad.pt

**General description:**

The course is centred on the study of Marine and Coastal Ecosystem Services From Mapping to Modeling. The course will follow a problem-based paradigm, learning the most advanced Ecosystem Services mapping and modeling techniques from theory and practice using case studies.

## Contents:

*The contents indicated are merely orientational and will be reassessed day by day based on performance evaluation and user feedback.*

### Day1:

- **Morning**
  - Brief introduction to semantic modelling
  - Introduction to k.LAB, a web-semantic modelling platform
  - Installation of the software
  - k.LAB full stack overview
- **Afternoon**
  - Introduction to the k.Modeler:
  - Observing a context
  - Importing data

### Day2:

- **Morning**
  - More on semantics: data annotation, model resolution
  - Sharing, publishing, documenting models
  - Interactive mode
- **Afternoon**
  - Practice and content development

### Day3:

- **Morning**
  - Marine and coastal modelling in k.LAB
  - Introduction to web applications
  - Natural Capital Accounting and use of SEEA
- **Afternoon**
  - Practice and content development
  - Collaboration tooling and following up
  - World Caffe

## Teaching methodologies:

The course will follow a problem-based approach combining theoretical and practical sessions. Computers are needed.

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### Evaluation system:

The students will be provided with some practical cases /exercises that will be required to solve.

### Brief CV of the lecturers:

#### Prof. Ferdinando Villa

[https://www.bc3research.org/our\\_team/researchers/ferdinando\\_villa.html](https://www.bc3research.org/our_team/researchers/ferdinando_villa.html)

Dr.Villa's research sits at the multi-faceted interface of linguistics, computer science, social science, ecology and economics, concentrating on artificial intelligence approaches to assist environmental decision-making and natural system assessment and valuation. During a 25-year career in the USA and Europe, he collaborated with many international institutions and governments and authored or co-authored 180+ scientific publications, as well as a number of major open-source software packages. He has been the recipient of major research grants from the US National Science Foundation, the European Union, The UK NERC, UNEP-WCMC and other institutions and NGOs, all aiming to contribute to the science of coupled natural/human systems and to build effective technologies for decision makers that take sound science and "democratize" it by putting it at the fingertips of decision makers worldwide.

#### Prof. Edna Cabecinha

Edna Cabecinha is an Assistant Professor at the University of Tras-os-Montes and Alto Douro (UTAD) in the Department of Biology and Environment. She completed her Ph.D. in Environmental Sciences in 2008 (UTAD), MSc in Environmental Technology in 2002 at the University of Minho (School of Engineering), and BSc in Biophysical Engineering in 1998 at the University of Évora. She is the Vice-director of the Doctoral College of UTAD, Course Director, and Member of the Academic and Executive Committee of the International Doctoral Program in Marine Science, Technology, and Management (Do\*Mar). She is also Co-lead of the Nature-based Solutions Thematic Group of the Commission on Ecosystem Management of IUCN - International Union for Conservation of Nature. Member of the Ecosystem Services Partnership (ESP), ESP Working Group on Modelling ES, and Member of the International Council for Exploration of the Sea, ICES Working Group on Resilience and Marine Ecosystem Services (ICES WG RMES). Works in the area of Natural sciences with emphasis on Landscape Management, Climate change, Ecological Modelling, Ecosystem restoration, Ecosystem services and Nature-based Solutions.

#### Dr. Alessio Bulckaen

<https://intranet.bc3research.org/h6T8Uy8Nm4gFs0O/202011270645541091935604.pdf>

**Alessio Bulckaen** holds an Msc in Economics from U. Louvain and has completed postgraduate advanced courses in Sustainable Energy Systems. He worked for several years in the energy and sustainable (green finance) sectors as a financial and economic analyst. He joined BC3 in 2020, where he leads the integration of Natural Capital Accounting models and methodologies in ARIES, in collaboration with the

Statistical Office of the United Nations and governments worldwide.