

SCIENCE AND MANAGEMENT OF GLOBAL CHANGE

Coordinator: Jordi Cristóbal Jordi.Cristobal@uab.cat

This specialization offers an in-depth scientific view of the intersecting global environmental crises of climate change, biodiversity loss and pollution. It provides students with tools to address the socio-ecological impacts of global change and find solutions that foster socio-environmental transformation and innovation. Students will learn to analyse the interactions between social and ecological systems on a planetary scale, and to develop evidence-based solutions for both impact adaptation and mitigation of global change.

The specialization offers an interdisciplinary overview of the complex causes and far-ranging consequences of global change, as well as the different societal responses and policies deployed to address the triple planetary crises of climate change, biodiversity loss and pollution. The specialization offers a range of cutting-edge theoretical approaches and methodological tools to examine dynamic interactions between humans and Earth systems and build integrative knowledge for a sustainable future. Students will gain a complete perspective of global change issues, including both their natural and social dimensions.

Global Change is understood as the resulting global-scale changes from the interaction of the natural systems (atmosphere, biosphere, cryosphere, geosphere, hydrosphere) and its cycles within human societies. Its study includes the analysis of such varied processes as climate change, the loss of biological and cultural diversity or the transformation of the territory, in the effort to minimize its negative impacts, among others. The understanding of the biological, physical, chemical and social processes related to Global Change, and their feedback, are some of the main current challenges, not only because of their complexity, but also due to the necessity of finding solutions to the negative impacts caused by such changes.

In addition to the mandatory courses "Interdisciplinary Concepts on Environmental, Economic and Social Sustainability" (15 ECTS) and "Master's Degree Dissertation" (15 ECTS), this specialization has two compulsory courses: "Global Change" (9 ECTS) and "Analysis and Management of Natural Landscapes" (6 ECTS). Whereas "Global Change" is a general introduction on the global impacts of human activities on different types of ecosystems (terrestrial and marine) at both spatial and temporal scales, "Analysis and Management of Natural Landscapes" centres more specifically in understanding the natural landscape and presenting several tools for its biodiversity monitoring and conservation management. The student can then complete the remaining 15 program credits by completing a combination of the following courses: "Climate Change" (6 ECTS), "Biocultural Diversity" (6 ECTS) or "Water, Energy and Land Management" (9 ECTS).