



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Communicating Sustainability Impact–Example Climate Change

2627-2-F7603Q031-F7603Q03102

Module description

The module is aimed at giving students a grounding in the science of global change and practical tools to communicate complex or contentious related issues effectively. Topics are chosen for their relevance and open-ended nature to stimulate critical thinking and help students evaluate claims on questions of societal importance. The classes will include hands-on experiments and discussion sessions on selected case studies.

Learning goals

Knowledge and understanding

Understanding the communication strategies used to represent environmental and climate impacts, including the challenges associated with communicating risk and scientific uncertainty.

Ability to apply knowledge and understanding

Developing a case study or a communication narrative regarding climate change, integrating scientific data, visual tools, and persuasive strategies.

Autonomy of judgment

Critically evaluating the impact and effectiveness of various climate narrative strategies (alarmism vs. hope, data vs. storytelling), while recognizing their ethical and communicative implications.

Communication skills

The ability to effectively present a case study on climate impact by integrating data, visualizations, and storytelling.

Learning skills

Developing the ability to independently locate and stay updated on scientific sources and data regarding climate change, critically assessing their reliability, and independently integrating them into the construction of a case study.

or communication narrative.

General goal

The teaching of this module of 2 CFU is aimed at providing the student with 1) an overview of the science of global change through a survey of current scientific debates and 2) some practical tools (including hands-on experiments) to communicate complex or contentious related issues in an effective way. Topics are chosen for their relevance, interest, and open-ended nature, with the aim of stimulating critical thinking and provide scientific information that allow students to evaluate claims regarding relevant questions for the society.

Specific skills and competences

Jakobson communication model. Communication factors related to global change, history of climate change discussion, common biases, IPCC reports, skepticism, denialism, and sensationalism.

Practical hands-on experiences designed to transfer scientific concepts to diverse audiences.

For discussion classes, several specific topics will be chosen based on students interest and desire among the following (others might be added):

Ocean circulation collapse: could ocean circulation change rapidly due to global warming?

Geoengineering solutions: should they be studied and implemented to mitigate global warming?

Permafrost thawing and greenhouse emissions: a positive feedback?

Anti pollution policies: do they increase the warming?

Antarctic ice sheet instability: how fast could west Antarctica collapse?

Anthropocene: when did human beings start to alter climate?

Extreme precipitations and floods: is anthropogenic climate change increasing them?

Tropical cyclones: more frequent, more intense?

Mid latitudes cold spells: are they getting more severe?

Differential warming: why is there polar amplification of climate change? Why do continents and oceans warm at a different pace?

Food production: will global warming induce food shortage?

Controversial papers: retractions or rebuttals?

Climate change scenarios: communicating uncertainties.

Sustainable Development Goals of the 2030 UN Agenda

The module is directly linked to Goal 13 (Climate Action), which forms the basis of the case study presented to students. However, the topic of climate change is addressed in terms of its systemic and interconnected nature, highlighting its links to other Sustainable Development Goals, such as Goal 7 (Affordable and Clean Energy), Goal 11 (Sustainable Cities and Communities), and Goal 15 (Life on Land). Through the analysis and development of effective communication strategies, the module aims not only to convey scientific content regarding climate impact but also to foster student awareness of the strategic role communication plays in promoting behaviors, policies, and narratives aligned with achieving the goals of the 2030 Agenda.

Breakdown of meetings

2 credits – instruction delivered via a lecture-based format in the initial phase, with the aim of engaging students in the subsequent interactive phase. The course is structured into ten 2-hour sessions, comprising:

- 3 introductory sessions (6 hours): In-person Delivered Didactics (DE - LEZ),
- 1 session (2 hours) featuring practical experiments to visualize concepts related to climate change: In-person Interactive Teaching (DI - LAB),
- 6 sessions (12 hours) involving case study discussions: In-person Interactive Teaching (DI - LAB)

Number of participants

Language used in meetings

English

Delivery period of the module

First semester

Methods of assessing the outcomes of the learning process

Each student is required to bring to class a one-page position paper for each discussion topic, critically summarising the content of the assigned reading materials and providing an initial personal judgment on the topic. For one session, students are also required to prepare a presentation aimed at stimulating discussion on the selected topic. Active participation in discussions is required throughout the module.

The final grade for this module is based on the following components:

- Position papers (40%) — One per discussion topic. This component evaluates the student's ability to critically synthesise assigned reading materials, engaging with their core arguments rather than merely describing them, and to formulate an independent, well-reasoned judgment on the topic. It assesses both comprehension of scientific content and the capacity for autonomous critical reasoning.
- Student-led presentation (30%) — For one session, each student prepares a presentation designed to stimulate discussion on the selected topic. This component evaluates communicative and facilitation skills: the ability to present complex material clearly, frame open questions, and actively engage peers in debate.
- Participation in discussions (30%) — This component evaluates ongoing engagement throughout the module, including the quality and consistency of contributions to debates, the ability to respond constructively to others' arguments, and the application of critical thinking in real time.

Overall, the assessment is not based on the recall of factual content through traditional exams, but on the demonstration of the three core competences developed by the module: critical synthesis of scientific literature, effective science communication, and active critical engagement in discussion.

Department of affiliation of the teacher

DISAT

Sustainable Development Goals

QUALITY EDUCATION | CLIMATE ACTION
