Research at the University of Bologna addresses: science teaching and learning in formal and informal contexts, scientific citizenship, public engagement, dissemination and communication of science, science teacher education.
Science teaching and learning

- Education to scientific knowledge
- Development of STEM skills; making STEM careers attractive
- RRI (Responsible Research and Innovation) and science teaching
- Pre-service and in-service teacher education
- New technologies for teaching and learning
- The role of history, philosophy and epistemology in teaching/learning science
- Educational reconstruction of advanced current topics in physics (thermodynamics, relativity, quantum physics)
- Physics education in a multi-disciplinary perspective
- Development of computational thinking in K-12 education
- Appropriation and conceptual change models
- Analysis of complex learning environments
- Instruction design about environmental issues
- Social development, cognition and gender stereotypes
- Social and cultural history of science

Citizen science and scientific citizenship

- Training needs in citizen science and impact assessment of citizen science initiatives
- Science education and scientific citizenship
- Future-oriented science education;
- Public engagement, community-based participatory research and involvement of citizens in S&T research
- Communication of science; skepticism and trust in science
- Dissemination, awareness, knowledge sharing activities and events to connect science and society
- Science and society in modern and contemporary age

Informal science education

- Science education in informal contexts
- Science education and storytelling
- Science teaching tools (museums, science centers, popular books, communication of science)
- Museums education
- Evaluation of museum programs

HIGHLIGHTS

ERASMUS + I SEE Inclusive STEM Education to Enhance the capacity to aspire and imagine future careers project designs innovative teaching modules to develop transversal future-scaffolding skills through science education: they refer to the ability to construct visions of the future that empower action in the present. The modules, targeted to upper secondary school students, address interdisciplinary topics (e.g. climate change, artificial intelligence). Future-scaffolding skills can be developed through activities inspired by Futures studies or Design thinking, but also through activities aimed to flesh out the temporal and causal structures that science progressively developed from the deterministic to the probabilistic models of the science of complex systems.