Course Descriptions None 2025-2026

Course Title	Sustainability Science
Course Code	SSP2031
ECTS Credits	5,0
Assessment	Whole/Half Grades

Period

Period	Start	End	Mon	Tue	Wed	Thu	Fri
1	1-9-2025	17-10-2025			X		X

Level	Introductory/Intermediate
Coordinator	Ron Cörvers, Jacob Moody For more information:r.corvers@maastrichtuniversity.nl; jacob.moody@maastrichtuniversity.nl
Language of instruction	English

Goals	* Students recognise, analyse, and explain social, ethical, and normative aspects of sustainability science for policy, business, and society (social complexity, multiple actors, fact-value distinction, worldviews, framing, decision-making)
	* Students recognise, analyse, and explain theories and concepts of sustainability science (social-environmental system, post-normal science, integrated analysis, transdisciplinary approach, problem-driven science, linking knowledge to action)
	* Students recognise, analyse and explain the relationships between science and society (linear model of science, uncertainty, different types of knowledge, salience, credibility, and legitimacy of knowledge, problem types, problem structuring, boundary work, boundary objects, boundary organisation), and the roles scientists can play in these relationships when dealing with sustainability problems in different contexts (pure scientist, (stealth) issue advocate, science arbiter, honest broker)
	* Students apply the following to a case study:
	    * theories and concepts of sustainability science
	    * social, ethical, and normative aspects of sustainability science
	    * the relationships between science and society and the roles scientists can play in these relationships when dealing with sustainability problems in different contexts

Description	Emerging in the 1990s as a new field of knowledge, Sustainability Science aims to understand and guide the dynamic interactions between society and the environment. It combines insights from different disciplines, such as environmental sciences, economics, and sociology with different societal domains, such as policy, business, and civil society. Moreover, Sustainability Science is building on a paradigm shift in how we approach science itself, from 'traditional science' and its linear model of science-society relation to participatory forms of knowledge production where 'boundary work' at the interface of science and policy is vital in facilitating this relationship. By understanding and managing the boundaries between science and non-science, decision-makers can better integrate scientific insights into policy and practice. This integration is essential for navigating the uncertainties and complexities inherent to sustainability problems, where scientific knowledge must be balanced with political, economic, and social considerations. We will see that different types of policy problems require different types of problem-solving approaches. Only 'structured problems' can be tackled through calculation and command-and-control, while sustainability problems are often 'unstructured'. Therefore, we must also focus on problem structuring—several key stages for moving from a vague understanding of a complex issue to a clear, structured problem that can be addressed through policy and practice. In doing so, we should be aware that scientists can fulfill different roles in knowledge production processes, often characterised as the pure scientist, the science arbiter, the issue advocate, and the honest broker. We will also see that scientific knowledge (production) needs to be credible, salient, and legitimate in the eyes of the knowledge users to be actionable and impactful. Different types of knowledge are also necessary for solving sustainability problems, such as systems knowledge (facts provided by science), target knowledge (values defined by politics), and transformation knowledge (agency by practitioners). Integrating these types of knowledge is essential when dealing with the complex, multi-faceted issues that characterize sustainability problems. Additionally, worldviews play a fundamental role in how societies understand and interact with nature and the environment. Different worldviews—particularly the Modern/Western and Indigenous worldview—can shape and inform our approaches toward sustainability. Sustainable solutions cannot be effectively crafted or implemented without acknowledging and respecting the various worldviews or cultural lenses through which societies understand their relationship with the environment. The ultimate goal of Sustainability Science is, therefore, to create useful and actionable knowledge to support sustainability transitions. That is, transforming societies towards a new development path by balancing environmental protection, economic growth, and social equity, both globally and locally. We will discuss the importance of governance, frameworks for action, systems thinking, and critical reflection in guiding sustainability transitions and transformation. To complement the theoretical content of this course, we will also be working with a case study. This will allow you to apply the key concepts to critically assess what is happening in the 'real world'. The case study will focus on Carbon Capture and Storage (CCS); with global temperatures consistently rising, the urgency of decarbonising human activities has become increasingly evident. While efforts to reduce greenhouse gas emissions are critical, they alone are insufficient to solve the climate crisis. Even if we halted all emissions today, the lingering effects of past carbon emissions would continue to wreak havoc on our planet. This is where CCS comes into play. By capturing carbon dioxide emissions from industrial processes and storing them deep underground, CCS aims to prevent these gases from contributing to global warming. One particularly intriguing approach involves storing carbon dioxide beneath the seabed, a method that holds significant potential but also raises serious questions. Is CCS a game-changer in our fight against climate change, or a false promise? The course will help to prepare you for later work as sustainability professionals within government, business, civil society organisations, science, or knowledge-based organisations, and help to make you aware of the dynamic and complex relationships between different organisations and societal domains in the pursuit of sustainability.
Literature	
Prerequisites	Exchange students should refer to the International Relations Office via email in case they would like to register for this course: iro-incoming-sbe@maastrichtuniversity.nl. Only limited spots available, first-come first-serve principle.
Keywords	
Transitional Regulations	
Teaching methods	PBL / Lecture / Assignment / Groupwork
Assessment methods	Written Exam / Assignment

Evaluation in previous academic year	For the complete evaluation of this course please click http://iwio-sbe.maastrichtuniversity.nl/rapporten.asp?referrer=codeUM
This course belongs to the following programme / specialisation	

Master Sustainability Science, Policy and Society - Business for Sustainability	Compulsory Courses
Master Sustainability Science, Policy and Society - Policy for Sustainability	Compulsory Courses
SBE Exchange Master	Master Exchange Courses