Spatializing and Modelling SDGs Indicators & Regional Narratives

Educational subject description sheet

Basic information

Field of study Joint Bachelor in Sustainability	**Education cycle** 2025/26
Speciality Geography & Economics	**Subject code** UJ.WPAJBSGECS.8100.16528.25
Organizational unit Faculty of Law and Administration	**Lecture languages** english
Study level first cycle (joint degree programme)	**Subject related to scientific research** Yes
Study form full-time degree programme	**Disciplines** Earth sciences and the environment
Education profile General academic	**ISCED classification** 0532 Earth sciences
Mandatory obligatory	**USOS code**

Subject coordinator	Piotr Szwedo
Lecturer	Romain Courault, Céline Clauzel

Period Semester 5	**Examination** exam **Activities and hours** Discussion class: 45	**Number of ECTS points** 5.0

Goals

C1	Develop disciplinary and interdisciplinary skills to analyse, assess and critically evaluate methods and narratives around climate change issues. Apply methodology using specific tools.

Subject's learning outcomes

Code	Outcomes in terms of	Effects	Examination methods
Knowledge – Student knows and understands:			
W1	the core principles and concepts of Intergovernmental Panel on Climate Change (IPCC) reports, health geography and of the 17 SDGs and their targets; discuss the spatial distribution of health and disease and the factors influencing these patterns. Examine major global health challenges such as infectious diseases, non-communicable diseases, and pandemics.	JBS_K1_W01	written exam
W2	the historical context and development process of the SDGs and reconstruct climate narratives using IPCC	JBS_K1_W02	written exam
W3	strategies for implementing the SDGs at global, national, and local levels.	JBS_K1_W03	written exam
W4	cultural diversity and sensitivity in health interventions and sustainable development efforts; understand the importance of cultural sensitivity and context-specific approaches in sustainable development; compare and contrast the challenges and opportunities of SDG implementation in different contexts	JBS_K1_W04	written exam
W5	critical thinking skills to analyze and interpret health data within a geographical context; analyze the role of policy, governance, and institutional frameworks in achieving the SDGs;identify key stakeholders involved in SDG implementation, including governments, NGOs, private sector, and communities	JBS_K1_W05	written exam
W6	the relationships between environmental factors and health outcomes; understand the role of health within the context of the Sustainable Development Goals (SDGs); analyze the interrelationships and synergies between different SDGs; analyze the impact of environmental policies and practices on sustainable development outcomes; assess the role of economic growth, social protection, human rights, innovation and technology in achieving the SDGs; translate complex climate data and projections from IPCC reports into accessible narratives for diverse audiences. Integrate knowledge from various disciplines (e.g., environmental science, economics, sociology) to understand and reconstruct climate narratives.	JBS_K1_W06	written exam
W7	the effectiveness of international health interventions and collaborations; explore ethical considerations of climate change as outlined in IPCC reports and in achievement of the SDGs; apply climate models discussed in IPCC reports to simulate and predict future climate scenarios.	JBS_K1_W07	written exam
Skills – Student can:			
U1	identify and evaluate the impact of social determinants on health at local, regional, and global scales. Conduct independent research projects on health geography topics related to sustainable development.	JBS_K1_U01	written exam

Code	Outcomes in terms of	Effects	Examination methods
U2	evaluate and discuss the progress and challenges in achieving SDGs and health equity and case studies of successful SDG implementation projects and initiatives; explore best practices and innovative approaches to sustainable development that contribute to achieving the SDGs; develop skills to effectively communicate the importance of the SDGs to various audiences; apply participatory methods to involve communities in health planning and interventions; present findings and recommendations to stakeholders, demonstrating practical application of course concepts; analyze, interpret and synthesize climate data presented in IPCC reports at both global and regional scales; critically evaluate the statistical methods and models used in the IPCC reports, and suggest climate policies using that insight	JBS_K1_U02	written exam
U3	utilize Geographic Information Systems (GIS) to map and interpret health outcomes and their determinants, as well as measuring and reporting on SDG indicators; assess the impact of urbanization on health and well-being; apply interdisciplinary approaches to design and implement solutions for achieving the SDGs and assess IPCC models	JBS_K1_U03	written exam
U4	develop policy recommendations to enhance the effectiveness of SDG implementation; propose strategies to ensure that no one is left behind in the pursuit of sustainable development.	JBS_K1_U04	written exam
Social competences – Student is ready for:			
K1	assess the importance of addressing inequality and promoting inclusion in the context of the SDGs; apply participatory methods to involve communities in health planning and interventions.	JBS_K1_K01	written exam
K2	explore strategies for promoting health in urban settings through sustainable urban planning and policy; create advocacy strategies to promote the adoption and achievement of the SDGs, build effective partnerships and engage stakeholders in SDG initiatives; design and implement a capstone project that addresses a specific SDG-related challenge.	JBS_K1_K02	written exam
K3	analyze how social, economic, and cultural factors influence health disparities; engage with community-based approaches to improve health outcomes; explore ethical issues in health geography, climate change mitigation and adaptation strategies research and practice; evaluate the potential of new technologies to address sustainable development challenges; develop critical thinking and problem-solving skills to address complex sustainable development issues.	JBS_K1_K03	written exam
K4	compare and contrast regional climate projections and their implications for local policy and planning.	JBS_K1_K04	written exam

Code	Outcomes in terms of	Effects	Examination methods
K5	propose solutions to reduce health inequities within different populations; understand the importance of data collection, monitoring, and reporting in tracking progress towards the SDGs; propose evidence-based recommendations for regional and global climate policy based on IPCC findings; conduct independent research projects that reconstruct and analyze climate narratives using IPCC data.	JBS_K1_K05	written exam

Calculation of ECTS points

Activity form	Activity hours*
Discussion class	45
problem analysis	45
preparation for the exam	30
preparation for classes	15

Student workload	Hours	ECTS
	135	5.0

* hour means 45 minutes

Study content

No.	Course content	Subject's learning outcomes
1.	Section 1: Technical reconstruction of global & regional narratives of IPCC reports 5.3.37 • Introduction to IPCC and Climate Change Assessment • Climate modelling and Scenario development • Data sources and observational evidence • Climate change impacts assessment • Adaptation and vulnerability assessment • Mitigation strategies and policy analysis • Synthesis reports and summary for policymakers • Critical analysis of IPCC methodologies, assumptions and communication strategies	W1, W2, W6, W7, U2, U3, K2, K3, K4, K5

No.	Course content	Subject's learning outcomes
2.	Section 2: Health geography in sustainable development 5.3.38 • Introduction to health geography applied to sustainable development • Spatial epidemiology and disease mapping • Access to healthcare services • Environmental health and sustainable development • Social determinants of health • Health impact assessment and policy planning • Climate change and health • Community engagement and participatory approaches	W1, W4, W5, W6, W7, U1, U2, U3, K2, K3, K5
3.	Section 3: Toward SDGs application & achievement 5.3.39 • Intro to the implementation of SDGs, from global to local perspectives SDGs targets and indicators • Integrating the SDGs into National Development Plans • Localizing the SDGs : role of cities, and communities • Partnerships for sustainable development • Financing Sustainable development • Addressing inequality and leaving no one behind • Monitoring, reviewing, and accountability aspect of SDGs	W1, W2, W3, W4, W5, W6, W7, U2, U3, U4, K1, K2, K3, K5

Course advanced

Teaching methods :

text analysis, brainstorming, conversation lecture

Activities	Examination methods	Credit conditions
Discussion class	written exam	Active participation (non-graded), written exam based on open questions (graded).

Entry requirements

None

Literature

Obligatory

1. Materials provided during the class and additional literature suggested by the lecturer

Effects

Code	Content
JBS_K1_K01	The graduate can encourage sustainability-driven practices in the workplace and appraise sustainability of own values, perceptions, roles, and actions, with a special focus on environmental wellbeing.
JBS_K1_K02	The graduate can demonstrate considerable entrepreneurial initiative, autonomy, and readiness to act in complex and changing environments, especially in the context of supporting, undertaking, and co-organising activities beneficial for a sustainable society.
JBS_K1_K03	The graduate can consider different visions of the future and develop own evidence-based opinions in reference to the balance of values linked to economic development, social welfare, and environmental protection.
JBS_K1_K04	The graduate can critically assess and verbalize own competencies and skills related to different aspects of sustainability as well as their need for development.
JBS_K1_K05	The graduate can defend the importance of scientific data and methods as a basis for decision-making.
JBS_K1_U01	The graduate can critically analyse academic literature, formulate research questions and conduct research under supervision.
JBS_K1_U02	The graduate can present and report knowledge, methodologies, ideas, problems and solutions, clearly and comprehensively, in different forms destined for different audiences – including discussions and debates which require defending a substantiated opinion, as well as conversations in a foreign language at the CEFR B2 level.
JBS_K1_U03	The graduate can apply adequate methods and tools, including selected IT tools, to solve problems related to data collection, analysis, and management in the context of sustainability.
JBS_K1_U04	The graduate can plan and effectuate simple sustainability-related projects under supervision and in the context of personal lifelong learning, both individually and in a team, using appropriate transversal skills and taking shared responsibility for the outcome.
JBS_K1_W01	The graduate can describe the concept of sustainability and recognize the differences in relevant definitions, models and approaches.
JBS_K1_W02	The graduate can explain the axiological background of sustainability and summarize key stages of development of the concept.
JBS_K1_W03	The graduate can give examples of sustainability-related dilemmas and hypothesize on the optimal course of action.
JBS_K1_W04	The graduate can identify sustainability-related problems specific to selected cultural, geographical, and political contexts.
JBS_K1_W05	The graduate can identify essential international instruments and institutions related to sustainability and explain their potential role in resolution of a given problem.
JBS_K1_W06	The graduate can describe interconnections between various aspects of sustainability and identify their significance in the context of natural and social sciences, with a special focus on disciplines included in the selected specialisation track (law and politics; chemistry and physics; chemistry and biology; economics and geography; economics, management and engineering; humanities).
JBS_K1_W07	The graduate can apply the theory and methodology of disciplines included in the selected specialisation track to sustainability-related problems, taking into consideration practical limitations such as protection of intellectual property.