Econometrics and Impact Evaluation

Educational subject description sheet

Basic information

Field of study Joint Bachelor in Sustainability	**Education cycle** 2025/26
Speciality Geography & Economics	**Subject code** UJ.WPAJBSGECS.8100.16527.25
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** Economics and finance, Management science and quality
Education profile General academic	**ISCED classification** 0311 Economics
Mandatory obligatory	**USOS code**

Subject coordinator	Piotr Szwedo
Lecturer	Clément Bosquet, Nick Deschacht, Romain Courault

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

Goals

C1	Master the use of methodology in economic appreciation of sustainability-related issues
C2	Get acquainted with the various tools of geospatial data and their use

Subject's learning outcomes

Code	Outcomes in terms of	Effects	Examination methods
Knowledge – Student knows and understands:			
W1	interconnections between various aspects of sustainability and identify their significance in the context of natural and social sciences, with a special focus on economics and geography	JBS_K1_W06	written exam
W2	how to 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.	JBS_K1_W07	written exam
W3	how to collect, analyze and present geographical data	JBS_K1_W04	written exam
Skills – Student can:			
U1	apply adequate methods and tools, including selected IT tools, to solve problems related to data collection, analysis, and management in the context of sustainability; use adequate tools to create and process geographical data	JBS_K1_U03	written exam
U2	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_U04	written exam
Social competences – Student is ready for:			
K1	to critically assess and verbalize their own competencies and skills related to different aspects of sustainability as well as their need for development.	JBS_K1_K04	written exam
K2	to defend the importance of scientific data and methods as a basis for decision-making; to assess monitoring efficiency in sustainability issues	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** 135	**ECTS** 5.0

* hour means 45 minutes

Study content

No.	Course content	Subject's learning outcomes
1.	Section 1: Econometrics. 5.2.34 • Why do we need econometrics? • Linear regression models • Ordinary least squares • Inference, statistical tests • Heteroskedascitity	W1, W2, W3, U1, U2, K1
2.	Section 2: Impact Evaluation in Economics 5.2.35 • The impact evaluation problem • Counterfactual causality • Randomized experiments • Reweighting and matching • Regression discontinuity • Difference-in-differences, Synthetic controls and Fixed Effects • Instrumental variables	W1, W2, U1, U2, K1
3.	Section 3: Contribution of GIS and remote sensing in sustainable development II (code 5.2.36) • Intro to GIS and remote sensing for sustainable development • Spatial data acquisition and processing • Spatial analysis techniques • Land use and land cover change detection • Natural resource management • Environmental monitoring and assessment • Disaster risk and resilience • Geospatial decision support systems for sustainable development	W1, W2, W3, U1, K1, K2

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. Core Econ Team (2024), The Economy 2.0 : Microeconomics, url : https://www.core-econ.org/project/the-economy-2-0-microeconomics/
2. Core Econ Team (2024), The Economy 2.0 : Macroeconomics, url : https://www.core-econ.org/new-edition-of-the-economy/
3. Core Econ Team (2024), Experiencing Economics, url : https://www.core-econ.org/project/experiencing-economics/
4. Core Econ Team (2024), Doing Economics, url : https://www.core-econ.org/project/doing-economics/
5. Core Econ Team (2024), The Economy 1.0, url : https://www.core-econ.org/project/core-the-economy/
6. Core Econ Team (2024), Economy, Society, and Public Policy, url : https://www.core-econ.org/project/core-espp/

Effects

Code	Content
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_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_W04	The graduate can identify sustainability-related problems specific to selected cultural, geographical, and political contexts.
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.