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GREENVERSITY CORE: The framework of competences and evaluation criteria to implement a sustainability-driven mindset in higher education

Y. Echegoyen, P. Gil, B. Vinha, V. Grecu, N. Mykrä, M. Puurtinen, J. Oliver, L.M. Martínez, A. Emorine, J.D Badia-Valiente, N. Levikov, S. Mollà-Casanova, P. Serra-Añó

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Co-funded by the Erasmus+ Programme of the European Union

This project, Grant Agreement No. 2024-1-ES01-KA220-HED-000257362, has been funded with support from the European Commission under the Erasmus+ Programme. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

20th Annual International Technology, Education and Development Conference, Valencia (Spain), 2026

Meet me not only at the coffee break

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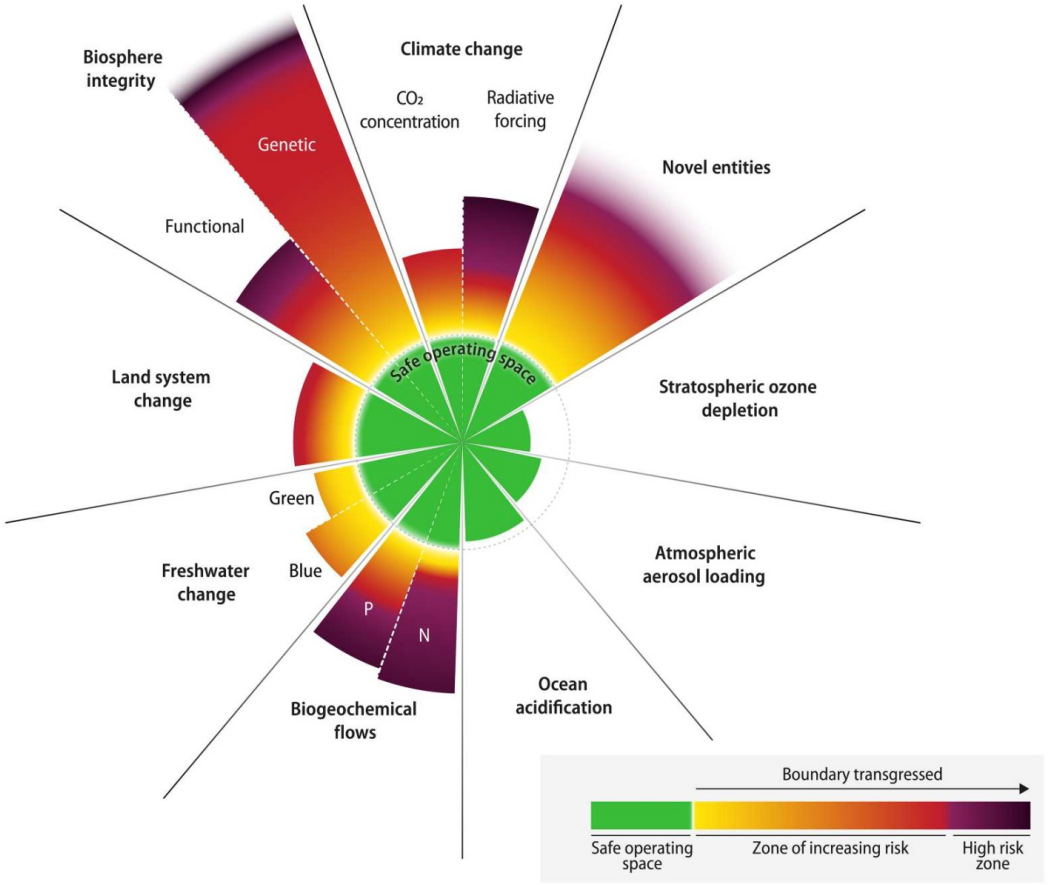
20th INTED, Valencia (Spain), 2026 | GREENVERSITY CORE- DOI: 10.5281/zenodo.17722436 | Greenversity Project – Eramus+ , co-funded by EU Commission 2024-1-ES01-KA220-HED-000257362)

Six Planetary Boundaries Transgressed



Richardson, K., et al. (2023). Earth beyond six of nine planetary boundaries. Sci Adv 9(37): eadh2458.

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The GreenComp

"Sustainability means prioritising the needs of all life forms and of the planet by ensuring human activity does not exceed planetary boundaries."

Bianchi, G et al, 2022. GreenComp – the European sustainability competence framework. doi:10.2760/13286

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Education for Sustainable Development (ESD)

GreenComp: European Sustainability Competence Framework

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What is the GreenComp?

Pathway to integrate sustainability in lifelong education and training, at all levels of education.

What is its purpose?

- Provides a shared language for educators and learners.
- Guides the design of both formal and informal learning programs.
- Promotes the development of **knowledge**, **skills** and **attitudes** to think, live and act sustainably.

What does it aim to develop?

- Systemic and critical thinking
- The ability to imagine sustainable futures
- Agency and individual/collective action
- Care for the planet and intergenerational justice

Building upon this foundation, the GREENVERSITY Project **has adapted and expanded the GreenComp principles to the specific context of higher education through the development of the GREENVERSITY CORE Framework** of Sustainability Competences in Higher Education

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The Greenversity Project

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Addressing **GREEN COMPETENCES** within the HE: nurturing excellence in learning, teaching, and skills development.

To implement of crafted scaffolding of a framework and training resources and initiatives

Establishing a FRAMEWORK: integration of the European Framework of Green Competences (GreenComp) into an accreditable program for HE.

Training programs for GEARS (educators): digital training center, a Training-of-Trainers methodology, an e-course and networking initiatives.

Empowering actions for AMBASSADORS (students): digital learning center, course, training and networking initiatives for upskilling and reskilling.

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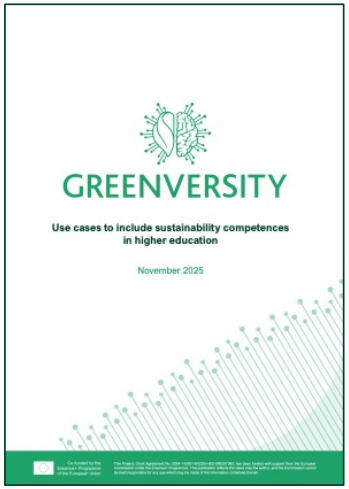
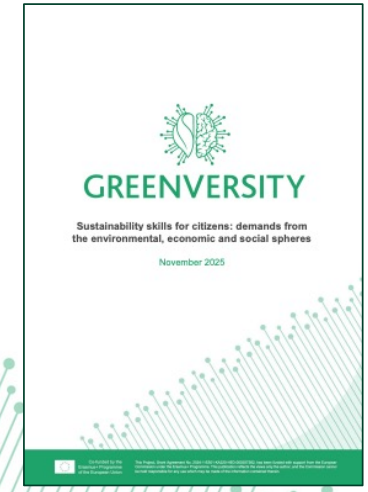
Greenversity CORE: previous studies



Echegoyen-Sanz, Y., Puurtinen, M., Mykrä, N., Gil, P., Vinha, B., Grecu, V., Martínez, L. M., Oliver, J., Emorine, A., Weclerke, F., Levikov, N., Torres-Mañá, C., Badia Valiente, J. D., & Serra-Añó, P. (2025). **Use cases to include sustainability competences in higher education**. Greenversity Project (2024-1-ES01-KA220-HED-000257362). https://doi.org/10.5281/zenodo.17902465

Existing frameworks, standards, and best practices in sustainability education were initially analysed to inform the development of the Greenversity model.

The work also included mapping exercises to explore how and where sustainability competences are currently integrated into educational programs, and how they might be more systematically implemented in the future.



Gil, P., Costa, C., Gorgulho, M., Fernándes, A., Grecu, V., Levikov, N., Torres-Mañá, C., Oliver, J., Serra-Añó, P., & Badia Valiente, J. D. (2025). **Sustainability skills for citizens: demands from the environmental, economic and social spheres**. Greenversity Project (2024-1-ES01-KA220-HED-000257362). https://doi.org/10.5281/zenodo.17674275

A key conclusion of the analysis is that sustainability competencies must extend beyond technical expertise. Effective transformation requires relational abilities, user-centred research skills, and wellbeing management, enabling individuals to engage collaboratively and ethically in solving real-world problems.

Embedding these competencies into curricula ensures that learners develop the cognitive, interpersonal, and practical capacities (including systems thinking, digital literacy, and ethical responsibility), essential for adaptive, future-oriented leadership.

GreenComp competences:Embodying Sustainability Values

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- **Valuing sustainability**: reflect on personal values; identify and explain how values vary among people and over time, aligning with sustainability values

- **Supporting fairness:** support equity and justice for current and future generations; learn from previous generations

- **Promoting nature**: acknowledge humans are part of nature; respect the needs and rights of other species and of nature itself; restore and regenerate for resilient ecosystems

GreenComp competences: Embracing Complexity in Sustainability

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- **Systems thinking:** sustainability problem from all sides; consider time, space and context to understand interactions between and within systems

- **Critical thinking:** assess information and arguments; identify assumptions; challenge the status quo; reflect on how personal, social and cultural backgrounds influence thinking

- **Problem framing:** understand potential challenges as a sustainability problem (difficulty, people, time, geographical scope) → identify approaches to anticipate and prevent problems, mitigate and adapt

GreenComp competences: Envisioning Sustainable Futures

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- **Futures literacy:** alternative sustainable futures, imagining and developing alternative scenarios and identifying needs

- **Adaptability:** manage transitions and challenges in complex sustainability situations and make decisions under uncertainty, ambiguity and risk

- **Exploratory thinking:** adopt a relational way of thinking by exploring and linking different disciplines, using creativity and experimentation

GreenComp competences: Acting for Sustainability

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- **Political agency:** navigate the political system, identify responsibility and accountability for unsustainable behaviour, demand effective policies

- **Collective action:** act for change with others

- **Individual initiative:** identify own potential for sustainability, contribute to improving prospects for communities and the planet

Greenversity CORE

EMBODYING SUSTAINABILITY VALUES	EMBRACING COMPLEXITY IN SUSTAINABILITY	ENVISIONING SUSTAINABILITY FUTURES	ACTING FOR SUSTAINABILITY
VALUING SUSTAINABILITY	SYSTEMS THINKING	FUTURES LITERACY	POLITICAL AGENCY
SUPPORTING FAIRNESS	CRITICAL THINKING	ADAPTABILITY	COLLECTIVE ACTION
PROMOTING NATURE	PROBLEM FRAMING	EXPLORATORY THINKING	INDIVIDUAL INITIATIVE

Example

Green competence	2.2 Critical thinking
General definition	To assess information and arguments, identify assumptions, challenge the status quo, and reflect on how personal, social and cultural backgrounds influence thinking and conclusions
Knowledge objective	To understand the impact of dominant narratives in the evolution of sustainability discourse and the need to challenge individually and collectively the status quo through a critical approach
Rubric: sentence for level 0	Is unaware of the influence of dominant narratives in the discourse on sustainability; does not question mainstream sources of information and has little critical perspective on the status quo.
Rubric: sentence for level 1	Has some doubts about the reliability of the sources, believes that the social and cultural environment can sometimes affect the perception of the idea of sustainability and considers that the dominant view is not always correct.
Rubric: sentence for level 2	Is utterly aware of the importance of the dominant discourse on sustainability; always assesses information with a critical eye by continually challenging the status quo.
Skills objective	To be able to assess and compare sustainability arguments and analyse information sources through evidence-based reasoning.
Rubric: sentence for level 0	Has little ability to understand the arguments supporting different approaches to sustainability and can barely distinguish between them; lacks critical thinking about different sources of information.
Rubric: sentence for level 1	Can distinguish the different ideas behind each discourse on sustainability and the different sources of information, applying basic critical reasoning.
Rubric: sentence for level 2	Can apply logical and critical reasoning when evaluating arguments about sustainability and identify reliable sources of information.
Attitudes objective	To be curious and inquisitive about sustainability issues, sceptical about own and others' assumptions and willing to revise them their when new data arise.
Rubric: sentence for level 0	Is reluctant to reconsider his opinions on sustainability while accepting uncritically the discourse of unverified sources of information.
Rubric: sentence for level 1	Is quite willing to revise his views if the information changes and accepts that sustainability is not an immutable concept.
Rubric: sentence for level 2	Is sceptical of unproven sources of information and arguments about sustainability and willing to change his/her mind when he/ she learns more or the facts change.

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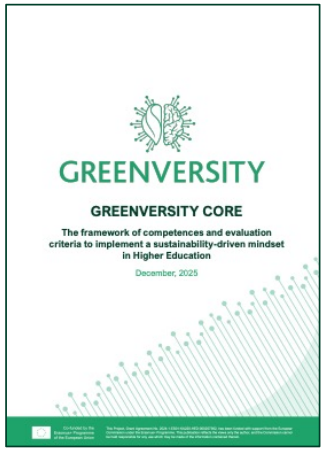

- Each competence→ Subdivided into 3 components (KSA, Knowledges, Skills and Attitudes)
- Each KSA→ Subdivided into three levels of acquisition→ Rubrics
- 4 areas – 12 competences – 36 components – 108 levels
- 6 languages: English, Spanish, Portuguese, Finnish, Romanian, French

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Coming up… Greenversity PATHWAY

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VALUING SUSTAINABILITY	SYSTEMS THINKING	FUTURES LITERACY	POLITICAL AGENCY
SUPPORTING FAIRNESS	CRITICAL THINKING	ADAPTABILITY	COLLECTIVE ACTION
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# COMP	MIN SCORE	MAX RED LIGHTS
8	16	3
9	18	4
10	20	4
11	22	5
12	24	5

How to implement it?

- Focused on Bachelor's Degrees, to ensure 4-year implementation.
- At least 8 out of 12 competences should be included.
- At least 1 competence of each Area should be included.
- Each competence will be implemented and assessed in 2 different subjects, at two different courses.
- Subjects must be compulsory and specific (not optional, and not the final BSC thesis)

How to evaluate it?

- Traffic light system for each component (KSA): 0-1-2 points
- Traffic light system for each competence: RED (0-1), YELLOW (2-4), GREEN (5-6)
- Minimum score /Max red lights for being awarded by the program

How to credit it?

- Ex-ante / ex-post system and tools based on European Standards

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Coming up… Pedagogical tools and resources

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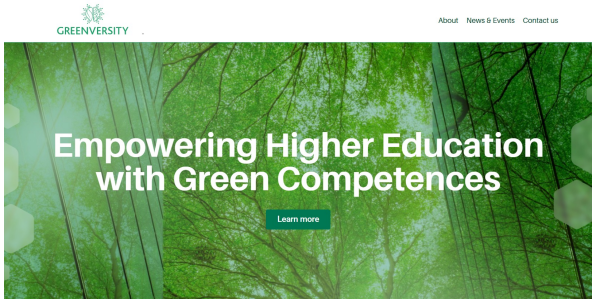
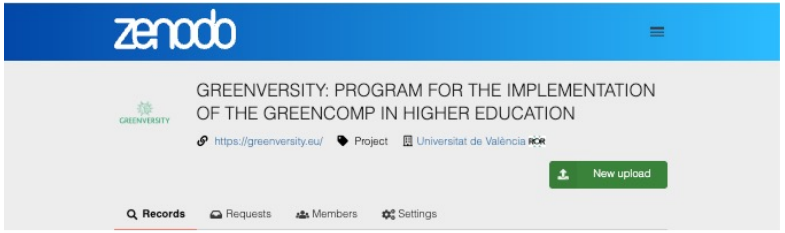
Empowering actions for AMBASSADORS (students): digital learning center, course, training and networking initiatives for upskilling and reskilling.

Follow us for more info



https://greenversity.eu/about/



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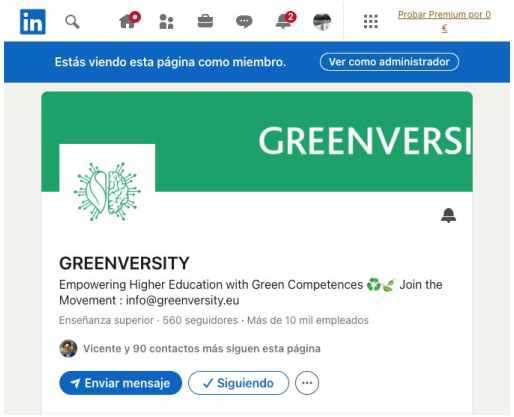

https://www.linkedin.com/company/greenversityerasmus/

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