



UNIVERSITY
OF COLOGNE



Sustainability Office
of the University of Cologne

SUSTAINABILITY STRATEGY OF THE UNIVERSITY OF COLOGNE

**Deep Science for our
Sustainable Future**



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Introduction

Sustainability in terms of environment and social matters presents one of the greatest challenges of our time. Issues such as climate change, biodiversity loss, pollution, food insecurity and resource depletion threaten the welfare of societies around the world and intensify social disparities. Sustainability is therefore an outstanding cross-cutting topic that will uniquely and significantly shape our future research, education and innovation activities.

We recognize the limits of our planet's capacity, which have already been exceeded in many dimensions. For a long time there has been a consensus, based on research at the University of Cologne (UoC), that only **sustainable development** can prevent irreversible tipping points, e.g. in the climate system. We must holistically consider the consequences of our behaviour from an ecological, economic, legal and social point of view, and create meaningful regulatory frameworks for an ecological transformation. This is imperative if the current generation's needs are to be served without compromising future generations' possibilities.

The importance of the topic 'climate change and its consequences' is both of outstanding and overarching significance in all fields of action of the UoC. At the same time, the sustainability strategy should not focus solely on greenhouse gas emissions, but should be based on a comprehensive understanding of sustainability in many dimensions and topics (ecology, economy and social issues) in accordance with the wide range of disciplines and Faculties of the UoC (Figure 1). The sustainability definition and the **Sustainable Development Goals of the United Nations** serve, among other things, as a framework for guidance. Thus, development is sustainable if it meets the needs of the present without restricting the possibilities of future generations to meet their respective needs.



Figure 1: Dimensions of sustainability

1. Strategy

Challenges such as climate change, environmental pollution, resource depletion, food insecurity, threats to biodiversity and social disparities require a **transition to a more sustainable lifestyle**. We at the University of Cologne want to address these challenges and contribute to solutions. **Therefore, we are committed to sustainability** in terms of a ‘whole institution approach’ in our fields of action research, teaching and transfer as well as organization and operation on campus. For the first time, corresponding objectives with specific and **overarching measures** are summarized in a holistic sustainability strategy (Table 1).

Deep science for our sustainable future brings together the various research activities at the UoC. The term ‘deep’ is intended to symbolize both the transdisciplinary variety, including historical, cultural and ethical aspects of sustainability, as well as a multi-layered approach, e.g. using different methods and data and state-of-the-art techniques such as artificial intelligence and digitally transformative processes up to virtual reality. The overarching topic of sustainability addresses all research fields of the UoC equally; natural sciences, life sciences, humanities and human sciences, law and economics. With reference to ‘our’ sustainable future, the UoC emphasizes the inclusive nature of research and the social relevance of all activities, both at the university and in the Rhineland in partnership with numerous local and global partner institutions.

Table 1: Fields of action and objectives: Anchoring of sustainability in research, teaching and learning, commitment and transfer, organization and operation

Fields of action	Research	Teaching and learning	Commitment and transfer	Organization and operation
Objectives (success indicators)	Expanding research in the fields of action of the United Nations Sustainable Development Goals (SDGs) and set priorities	Excellent researchers and research projects on the SDGs topics will be promoted. (Publications)	Create and promote knowledge and competence acquisition in the fields of action of the SDGs	The UoC develops and implements additional curricular and extracurricular offers on SDGs topics. (Teaching/learning offers, theses)
Specific measures	Promote commitment in the fields of action of the SDGs and pass it on to the wider society	Cooperation with non-scientific practice is visible in the SDGs topics. (Projects)	Positioning (Clusters of Excellence, key profile areas, EUniWell) with reference to the SDGs within the UoC	Record and reduce greenhouse gas emissions at the university and make campus operations more sustainable according to the SDGs
	Promoting innovation and start-ups with a sustainability dimension	Establishment of transdisciplinary interaction platforms involving all Faculties	Including sustainability issues in vocational study programmes (teacher training, medicine, law)	The consumption of fossil fuels is constantly and significantly reduced with the aim of climate-neutral management. (Emissions)
	Providing expert advice and policy advice with a sustainability perspective	Establishment of a centre with new, interdisciplinary research approaches on sustainability issues	Development and establishment of an innovative, interdisciplinary, profiled study and teaching/learning programme with a thematic reference to sustainability according to the SDGs (resulting from the research of that centre)	Establishment of the sustainable energy and climate protection management (energy efficiency, expansion of photovoltaics, green facade etc.)
Overarching measures	Active networking of stakeholders, competence building and supporting commitment through collaborative structures as well as internal involvement of students, faculty and administrative and technical staff			
	Awards and enhanced communication of achievements for the anchoring of sustainability, through a university prize for sustainability, web and social media, press and public relations work, events			
	Support structures and governance mechanisms including a Vice-Rector for Sustainability, Sustainability Council and Sustainability Office as well as in the group, in particular promoting young talents through Humboldt (scholarships, lecture series, summer schools) and EUniWell (mobility, seed funding)			
	Implementation of sustainability reporting incl. quality assurance, the management system Q ³ UoC for the area of teaching and learning, and evaluation, among other things through participation in rankings (among others THE Impact) as well as a regular sustainability report incl. quantification of greenhouse gas emissions and energy balance			

2. Anchoring sustainability

2.1 Research

Following our mission statement, excellent research should contribute to a sustainable lifestyle.

Research in our key profile areas addresses a variety of challenges identified in the UN *Sustainable Development Goals* (SDGs), for example health and well-being, climate protection, peace and justice, innovation and within the framework of research networks and institutions (Figure 2). New initiatives and associations with a sustainability focus are developing into further, primarily transdisciplinary, focal points of excellent research (e.g. in the areas of *sustainable living* and *language and education*). In addition, various individually funded projects with references to almost all of the 17 SDGs have been and will be supported; a special focus has developed in SDG3.

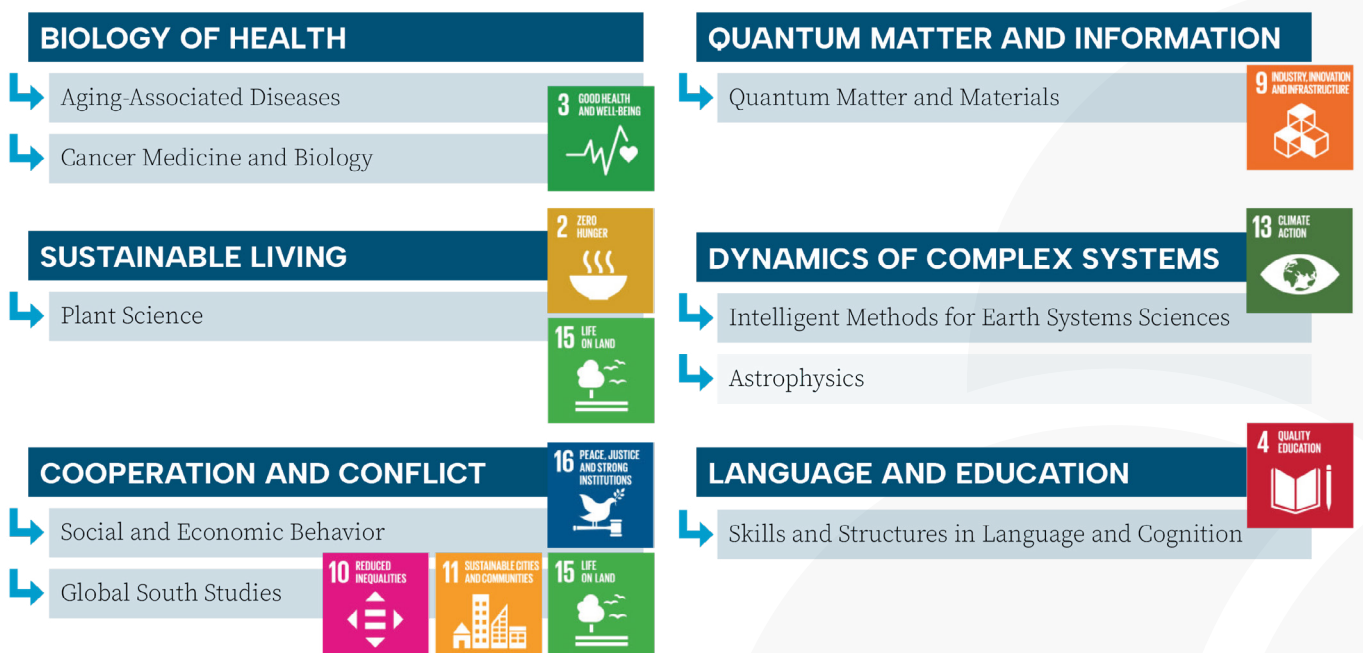


Figure 2: Key Profile Areas of research-related to the SDGs

The UoC will further strengthen its research areas and promote new sustainability-related research initiatives. The challenges of climate change and biodiversity loss as well as growing socio-economic inequality require approaches that integrate different methods and perspectives. We will therefore use the potential of our disciplinary variety to initiate further transdisciplinary research. New activities such as **Earth System Sciences, Environmental Humanities, Peace Studies and Carbon Capture** complement the already broad spectrum of highly up-to-date research on a wide range of sustainability topics. The aim is to establish a new Key Profile Area in the **Research Theme Sustainable Living**.

Existing and new sustainability initiatives are to be managed collectively within the **Center for Sustainable Societies**. The goal is to explore the complex connections associated with the transition of humanity to more stable societies, to include them in teaching and promote awareness in society. In addition, we use established formats of collaborations (Forum, Emerging Field) to network existing research across disciplines and e.g. to react flexibly to dynamically changing scientific and social challenges by topic-related special invitations in existing funding formats.

The UoC continues to commit to free, knowledge-driven and curiosity-driven basic research. Extending knowledge is essential to understand problems and find solutions. With this strategy, we want to create a framework for recognizing and developing findings from our free research; specifically detailed for sustainable development discourse in transdisciplinary contexts. Nevertheless, we follow the principle of **reflection and responsibility** in the research process in order to act in a resource-sensitive manner.

2.2 Teaching and learning

Students and learners receive a wide range of opportunities to integrate sustainable education into their studies and to acquire sustainability competencies.

We train the next generation to become responsible members of tomorrow's society. We want to impart knowledge and skills to its members and enable them to acquire essential competencies in order to actively and foresightedly, value-consciously and dedicatedly shape a more sustainable world. Based on the mission statement and the quality goals of teaching and learning, we implement the principles of **research-based education** as well as **open educational resources** at the UoC and review our actions through our own quality management system Q³UoC.

In addition to the traditional sustainability-related subjects (e.g. Geosciences and Meteorology), the International Master of Environmental Sciences already presents a interdisciplinary programme of high visibility supported by five Faculties (Law, Mathematics and Natural Sciences, Medicine and Management, Philosophy, Economics and Social Sciences). The recently established Bachelor of Science in 'Management, Economics and Social Sciences – Driving Sustainable Change' is very popular among students and combines **interdisciplinary topics** from economics, management, psychology and sociology. The high demand clearly shows that interdisciplinary courses with a clear focus on the SDGs reflect the need and interest of future students to start studies on new transdisciplinary topics in order to tackle future challenges. The further development of the sustainability research profile offers the opportunity to anchor this profile in the study and learning profile of the UoC. In terms of a holistic sustainability strategy, teaching-learning offers on the contents of the SDGs are to be created on the basis of the corresponding research, innovative and interdisciplinary study courses on these topics are to be established and the interaction between research, teaching and transfer in the field of sustainability is to be expanded and strengthened. This also applies to the vocational study programmes, for example teacher training, law and medicine.

The European University for Well-Being (EUniWell), the European University Alliance managed by the University of Cologne, enables our students to take advantage of learning opportunities on the subject of **sustainability at a European level**. The UoC will open its new degree programmes to other students within the framework of EUniWell. In addition to established curricular offers and study programmes in the field of sustainability, **all students** should be made aware of the crises and challenges of climate change. To this end, the open lectures and lecture series as well as offers in the programme Studium Integrale (Service Learning and Certification Programme Sustainability Manager) will be extended. In order to meet the challenges of sustainable development and to allow the focus of research to work in the holistic profiling of all areas of the UoC's performance, we will further develop the teaching and learning offers as follows:

1. Wide range of courses in the programme **Studium Integrale** (modules from all Faculties, lecture series)
2. Creation of new and further development of existing **degree programmes** (e.g. Global Cultures and Environments, Material and Sustainable Chemistry, Environmental Sciences, offers in the Master's degree Energy and Climate Economics, specialization 'sustainability and law') in conjunction with the corresponding profile of research in the field of sustainability
3. Integration **of sustainability-related competencies in the form of microcredentials** over the entire student life cycle for all students of the UoC who want to broaden their horizon regarding sustainability (based on modules of the programme Studium Integrale and other competencies)
4. Incorporation of the '*Bildung für Nachhaltige Entwicklung*' (Education for Sustainable Development, BNE) programme **into teacher education**; introducing an additional certificate (corresponding to '*Studium inklusiv*') (inclusive studying) that can be obtained by attending courses with a BNE-related background.

2.3 Commitment and transfer

We want to make the wide range of knowledge accessible to society and together find solutions for the major challenges of our time through innovation and transfer.

As a university, it is our need and our duty to share our research activities, objectives and results with society in many ways in order to contribute to society and **evidence-based public discourses**. In particular, we want to make our various contributions to sustainability topics even more visible in a structured way, e.g. presenting them across all media channels with regard to the SDGs.

The UoC is playing its role as a **multiplier** and has already connected with strong partners both regionally (*Kölner Studierendenwerk, University Hospital Cologne, Cologne* universities, Research Alliance Cologne, the Cologne Science Forum) and nationwide, and within the framework of EUniWell and its internationalization strategy, as well as in the Coimbra group and the University Network on Social Responsibility. Through its approach to global responsibility and international partnerships, the UoC is expanding its teaching and learning opportunities in the field of sustainability and its activities in line with the SDG.

Open educational and research opportunities are offered **for all age groups** (including programmes such as the children's university, junior university, courses for guest students and senior citizens, part-time continuing education, among others **for** teacher training and management). The exchange on sustainability with practice in politics and business continues to increase, through working groups, expert reports and committees. In the University Strategy Plan, a strategy for social dialogue and **knowledge transfer** was developed. As a newly established **start-up university**, all innovations will be given a space for implementation with the help of the Gateway Excellence Start-up Center. The numerous support and counselling offers of the Gateway Excellence Start-up Center, which will also house the Sustainability Office in its building from autumn 2023, are particularly suitable for students and digital ideas. By being close to the start-up ecosystem, the Sustainability Office inspires the university's entrepreneurial spirit with ideas for the transformation toward sustainability. Conversely, the sustainability team learns entrepreneurial methods and applies them with the will to transform toward a more sustainable university.

The achievements of the university have an impact on society by

1. promoting innovations and **start-up ideas with a sustainability dimension**,
2. **extending the university's offers of establishing expert contacts and political consulting with a sustainability perspective**,
3. expanding various **open (dialogue) formats (including Citizen Science) with regard to sustainability** (in the city and Rhineland), especially for change agents such as teachers, on different, changing scientific topics and
4. linking the transfer and engagement measures set out in the **University Strategy Plan** to sustainability-related research and teaching.

2.4 Organization and operations of the University

As a university, we are aware of our special social responsibility and have the aim to shape the future positively through a sustainable, climate-neutral and liveable campus.

The anchoring of a consistent commitment to sustainability in the central fields of activity and performance dimensions of the university also means reflecting on our own organization, its operation and the development of the campus.

The UoC has already launched several initiatives which are to be strongly promoted in the coming years. We are already consistently raising awareness of **socially and ecologically sustainable consumption**, for example through the Fairtrade University initiative since 2018, and are continuing to intensify efforts to **minimize greenhouse gas emissions**. The latter were initiated as a result of the initiative of the student parliament (2019) and resulted in a dialogue on **climate-friendly mobility** with the city of Cologne (2020), as well as the quantification of our emissions (2021) and the conversion to green electricity (2022). A first CO₂ balance sheet (2018-2020) has been created, which will regularly record all relevant contributions from the UoC in the future. The first pilot projects on **photovoltaics** were initiated on the basis of a feasibility study in the construction of a new zoological research station and at the Student Service Center (2023) and are to be extended to a large number of roofs of the university.

The UoC sets itself the goal of becoming **climate-neutral** with its operations and properties and underpins this goal with a **'Sustainable Campus Operation' roadmap**. The following measures are intended to promote sustainability, reduce greenhouse gas emissions and replace fossil fuels with renewable resources:

1. To minimize greenhouse gas emissions, an **energy management system** for buildings will be developed, and building operations and construction will be aligned with ecological standards;
2. The efficient use of space is to be achieved by means of specific parameters and the raising of potentials in teaching (e.g. optimization of using the capacity of the lecture hall), research (e.g. major appliance concept) and operations (e.g. flexible workspaces);
3. Standards for environmentally and economically **sustainable procurement** are to be established;
4. Appropriate regulations should reduce business travel by air and the university's car fleet should increasingly be switched to electric mobility;
5. To replace fossil energy sources, the solar potential of the university areas is used to the maximum, and **facade greening is to be used for cooling** and green areas are to be expanded.

3. Overarching measures to link with the overall strategy of the University

In order to link it to the overall strategy, the Rectorate has created a **governance** for sustainability that includes the function of a **Vice-Rector** for Sustainability, the **Sustainability Council**, which consists of students, faculty and technological and administrative staff, and a central **Sustainability Office** (Figure 3). These institutions **accompany** and coordinate numerous initiatives and have developed this sustainability strategy.



Figure 3: Governance for Sustainability at the University of Cologne

In close coordination with the faculty and students, with the Rectorate, Faculties, institutions and administrative offices, an implementation plan is to follow, which outlines **transformation paths** on how to achieve the above-mentioned goals. The basis for this **implementation plan** are the above-mentioned specific measures (Table 1) in research, teaching and learning, commitment and transfer, as well as in organization and operation, using the overarching measures. This plan is created dynamically, linked to key profile indicators and target values, regularly reviewed and coordinated by the **Sustainability Office**.

The Sustainability Office is located in the Innovation Centre and thus inspires the entrepreneurial spirit and the start-up ecosystem of the university. It develops **innovative formats** to actively bring stakeholders together, develop their **skills**, promote interest and commitment; for example, within a new, comprehensive **sustainability forum**, in which researchers, lecturers and students from all Faculties as well as technological and administrative staff work together on sustainability issues. In this way, all university members are sensitized to sustainable action **and encouraged** to participate in the further development and implementation of our sustainability strategy.

The participation of students will continue to be an essential part of our sustainability strategy in the future, as will the exchange with our environment. Through new **partnerships and memberships** in consortia, we will make further expertise and resources available to the university community for all areas of action of the sustainability strategy.

In particular, we strengthen **communication** through new support structures and thus increase the **transparency** of planned and ongoing activities in web and social media, press and public relations and events. In addition, we award achievements for the anchoring of sustainability at the UoC with a 'University Award for Sustainability', which is awarded very openly for implemented, structurally effective projects on sustainability. This can include innovative centralized or decentralized processes, study and/or teaching/learning opportunities or research.

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In addition, we are improving our database on sustainability in the context of a new sustainability reporting, participation in rankings (e.g. THE Impact) and publish a **sustainability report** to evaluate the impact of the measures defined here (incl. quantification of greenhouse gas emissions and energy balance).

The implementation of the sustainability strategy is subject to the proven principles of university development and quality management at the University of Cologne: **Harmonization with the overall strategy**, step-by-step procedure that breaks down **expansion stages**, initial and establishment phases, as well as regular evaluation, approaches to agile management and **flexibility** in times of dynamic change.

4. Concluding remarks

With this strategy, we are starting to systematically integrate sustainable action in research, teaching, knowledge transfer, operation and organization, to set priorities that correspond to our individual profile and our strengths, thus creating a future-oriented work and study environment and helping to shape the way to a more sustainable society.

Legal notice

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