

APPLICATION ENLIGHT T&L-AWARD 2024

Inter- and Transdisciplinary Research Project in Sustainable Development (Research Project and accompanying Seminar)

University of Bern, Centre for Development and Environment

EDUCATORS

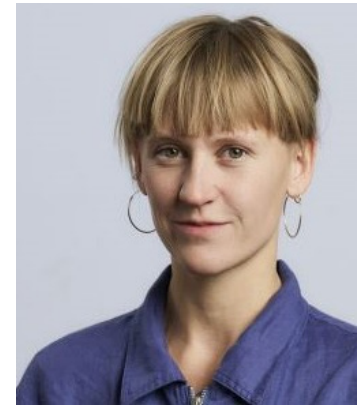


[Dr. Alexandra Vlachos](#)
Senior Research Scientist | Lec-
turer

leader / contact person



[Dr. Stephanie Moser](#)
Member of the Executive Com-
mittee | Head of Just Economies
and Human Well-Being Impact
Area



[Laurenzia Karrer](#)
Research Associate | Trans-
formative Education and Sci-
ence Impact Area

SHORT SUMMARY

The module "*Inter- and Transdisciplinary Research Project in Sustainable Development (Research Project and accompanying Seminar)*" is a two-semester course in which students autonomously conceptualize and implement an applied inter- and transdisciplinary research projects in relevant areas of sustainable development.

The module is organized and supervised by the *Centre of Development and Environment (CDE)*, and in collaboration with transdisciplinary practice partners (NGOs, governments, private sector, etc.). Practice partners provide ideas and topics from which interdisciplinary student teams initially choose one to work on over the two semesters in teams of four to six.

During the introductory phase in the spring semester, the students conceptualize the work plan and gain the necessary expertise in the selection and application of methods, project management skills, and in collaboration in an interdisciplinary team, as well as in the evaluation and public outreach of projects. Throughout the course, they are mentored by a team of university teachers and representatives from the practice partners. Applying their disciplinary and interdisciplinary skills, students carry out the bulk of their research projects over the summer break and present and critically reflect on their work in the autumn term. In this innovative format, they learn how to collaborate with students from other disciplines and stakeholders from both science and practice. From Autumn 2024 on the module will be transformed, re-designed and integrated into the new [Master's Program in Sustainability Transformations](#).

The *Centre for Development and Environment (CDE)* at the University of Bern is an interdisciplinary research Centre specialized on sustainable development. It conducts interdisciplinary research, provides education, and engages in policy dialogue on global development and environmental challenges. CDE aims to generate knowledge and solutions for sustainable development, particularly in the areas of natural resource management, climate change, land use, and social equity. It collaborates with partners worldwide to promote sustainable practices and inform policy-making. <https://www.cde.unibe.ch>

DETAILED DESCRIPTION

Learning Outcomes / Competences

Upon completion of the module: ...

- Students are able to independently design and carry out an interdisciplinary and transdisciplinary research project on relevant topics of sustainable development in a goal-oriented and applied way.
- They have the relevant skills in applying corresponding research designs and research methods, in project management, in organising work in an interdisciplinary team, in transdisciplinary collaboration, in evaluating projects and in communication to a scientific and non-scientific audience.
- They are able to effectively contribute their disciplinary and other competences to project work and to collaborate with students from different disciplines as well as with stakeholders from science and practice in a goal-oriented way.
- Students are also able to reflect critically on their contribution to teamwork and the skills they have acquired.

Profile

Time frame	Two semesters
Workload / ECTS	300h / 10 ECTS
Format	LMS-supported blended learning
Scenario	Research-based co-operative CBE-projects in small teams with external partners
No. of students	15-30 students in five teams
Mentoring	One project coach/mentor (expert of Centre), and one sparring partner from practice assigned to each student team

Synopsis

The inter- and transdisciplinary research project is the final and mandatory module of the Master Minor in Sustainable Development study programme of the University of Bern, which is organised by the Centre for Development and Environment (CDE) at the University of Bern. The study programme brings together students from different Major disciplines, as well as students from the University Teacher Education. In the module on the inter- and transdisciplinary research projects, over one and a half semesters, students conceptualize and implement an applied research project. To this, teams of usually of 4-6 students with disciplinary different backgrounds are built, based on the students interest in the announced topics on sustainable development. The initial ideas for the announced topics are either proposed from collaboration partners from practice, or from ongoing transdisciplinary research projects at CDE, or by the students themselves. Each student team is coached by a mentor from CDE and a representative from the partners who proposed the topics. Moreover, the students' project work is accompanied by a weekly seminar. In this seminar, students are gradually guided from developing the detailed research concept through its implementation to the written project report. The seminar is highly application-oriented, as input is provided precisely when it is needed for the project. Methodologically, the seminar consists of preparatory e-learning units for self-study (flipped classroom), structured inputs on campus from experts and a writing workshop to support with the report writing process. This structure provides a helpful framework while allowing a degree of flexibility in the working and learning methods within the different sections.

On the one hand, the challenges were introduced by the practice partner institutions. However, as the CDE is one of the most important Swiss research institutions in the field of sustainable development, the major global challenges were also at hand to the students as topics for their projects. In this case, CDE staff acted as project coaches.

The module has been carried out annually since the start of the programme in 2016 and has been regularly evaluated and continuously improved.

Exemplary topics

Over the years a number of inspiring and socially relevant student projects have been completed, for 2023, these were the following:

- Students explored the acceptability of energy-saving measures by employers and employees, based on this they provided recommendations for companies.
- In a case study with a company, students identified the benefits and challenges of introducing a 4-day-week
- Together with a Swiss nature parc students explored, how rangers work in visitors' awareness raising could be improved
- Students analyses the material flows in a partner company, and derived recommendations for this company on what the next steps in direction of a circular economy could be.

Products

During the module the student teams produce several products:

Preliminary product

In the first two months the teams sketched their research plan and present it to their peers. They revise the research plan and receive feedback from their coaches, before handing in the final research plan.

Energiesparmassnahmen für Unternehmen - Ein Werkzeugkasten



Final products

Three mandatory products are handed in at the end of the module.

- a written research report (teamwork). An example of such a report from 2024 can be found [here](#).
- a joint presentation (in front of practice partners, teachers/coaches and co-students)
- a written personal reflection on their own contribution to the teamwork (c.f. guiding questions below).

Additional project-specific products

Additional products are developed, depending on the concrete project and practice partner, e.g. guidelines, leaflets, flyers, supplements for teaching materials etc.

Additional information

[See this online folder for additional illustration material.](#)

Relation to ENLIGHT Criteria

Developing ENLIGHT competences that support innovation and creativity

Based on the self-chosen challenges, the students work on their topics and projects in small teams right from the start. Always in consultation with the coaches at CDE and the interested project partners. The accompanying seminar ensures that the necessary competences for the implementation of the projects are promoted in a customised way. Creativity and innovative thinking are encouraged and promoted right from the start.

Replicability in the ENLIGHT community

This approach ideal for students from various disciplines for interdisciplinary collaboration, such as in interdisciplinary degree programs or courses. For transdisciplinary cooperation, long-term partnerships with external partners are crucial, for example building on prior research collaboration. Proposed topics from practice should be pre-discussed with partners and perhaps narrowed down for feasibility, but still leaving enough room to allow for students to contribute their own ideas, fostering creativity and innovation. It is vital to establish that this is not commissioned research.

When selecting methodological designs and methods, they must align with the specific objectives and questions, necessitating a range of methodological approaches provided by an interdisciplinary coaching team. Students must also be aware of the challenges of interdisciplinary and transdisciplinary collaboration, as teams often need considerable time to develop a common understanding of the research topic, objectives, questions, and methodology. The research planning phase is critical and requires close supervision.

Reflection on learning and teaching is embedded in the learning process

A written personal summative reflection is part of the evidence of competence, in addition to a continuous exchange of experiences and relevant formative feedback from coaches and peers in the accompanying seminar. The written personal reflexion is informed by the following guiding questions:

- *What contribution have you made to research based on your discipline (concepts, theories, methods, project management, inter- and transdisciplinary)? What other significant contributions have you made outside your main discipline?*
- *How is your discipline characterised in terms of topic, research question and methodological design? What are the strengths and weaknesses of your discipline in this respect, and how can the weaknesses be overcome?*
- *Which future research questions could your discipline deepen in relation to the topic and why?*
- *What have you personally learnt from the work in your project team in terms of a) the design of inter- and transdisciplinary processes, b) the engagement with other disciplines and c) insights into other disciplines? What conclusions do you draw for comparable work contexts?*

Innovative approaches to student involvement

The entire module is highly engaging, with a high level of student involvement, based on the challenges and the respective student projects. The accompanying seminar, including the e-learning units, provides students with tools to master the different steps of the work, e.g. exercises and sample videos to narrow down the body of research or exercises to integrate the different results.

Educational Approaches

Inter- and Transdisciplinary approach

Transdisciplinary is the core characteristic of this module, firstly due to the interdisciplinary composition of the project teams. Secondly, due to the practice-orientated projects brought in by the partner institutions and the coaches at CDE. All final projects are the result of a co-construction process between all participants.

Research-oriented teaching

The module is essentially a supervised applied research and development project. At its core is the students' application-orientated project. The accompanying seminar provides intensive support throughout the process by supporting, e.g., the conceptualization of the research plan, the choice of adequate methods, support in implementing the methods chosen, and in integrating and interpreting the different results.

Collaborating with external stakeholders

Thanks to an extensive network of partner institutions, CDE is able to involve interested institutions in the module. With their projects, the students make a significant contribution to tackling the challenges formulated by the partners.

Challenge-based education

Sustainability challenges are an integral part and the core of the selected topics, being proposed by the students themselves, by the partner institutions or by the teachers, i.e. the project coaches of CDE. The accompanying seminar guides the project teams through the typical design thinking phases of their project. A crucial first step is the research plan, i.e. translating the sustainability challenge, proposed by the practitioners, into research goals and research questions, aligning them with the scientific debate, scientific theories and the state of research. A second encounter is to choose a research design promising scientifically valid results, but also meaningful answers for the partner's' questions.

Connection to the ENLIGHT competence-framework

The module aligns with the ENLIGHT competence framework in numerous ways, addressing challenges like climate change, energy use, circular economy, social inequalities, and human well-being. It employs research-oriented teaching and challenge-based education, follows a transdisciplinary approach, and collaboration with external stakeholders is a core element.

Students are supported to develop skills in problem-solving, critical thinking, creativity, innovation, collaborative decision-making, inter- and trans-disciplinary collaboration, communication, and leadership. The diverse student body and involvement of public and private sector representatives enhance context and conflict sensitivity, intercultural competences, and diversity awareness.

PARTNER INSTITUTIONS OF THE MODULE IN 2023 (SHORT DESCRIPTIONS)

Foundation Education21

As a national competence centre, éducation21 supports the practice-oriented anchoring, implementation and further development of ESD in schools as places of learning, living and working, in partnership with internal and external school stakeholders. éducation21 is a specialist agency of the EDK. Swiss conference of the cantonal Directors of Education.

Kraftwerke Oberhasli

The power plant Oberhasli AG (KWO) is producing electricity since 1925. Located in the Bernese Oberland (the Swiss Alps), it is one of Switzerland leading waterpower plant. The KWO also runs a hotel and is an important employer in the rural region of Oberhasli. It is committed to a variety of sustainable practices.

Naturpark Gantersch

Gantersch Regional Nature Park is one of 17 parks of national importance in Switzerland. The Gantersch Nature Park covers an area of 414 km² at an altitude between 510 m (Bern-Belp Airport) and 2239 m (Schafberg) and includes the Schwarzsee tourist region. It is a multi-use area, thus not an area protected like a National Park. "Gantersch" is the name of the 2,176m pre-Alpine peak between the Gurnigel region and the Simmen Valley.

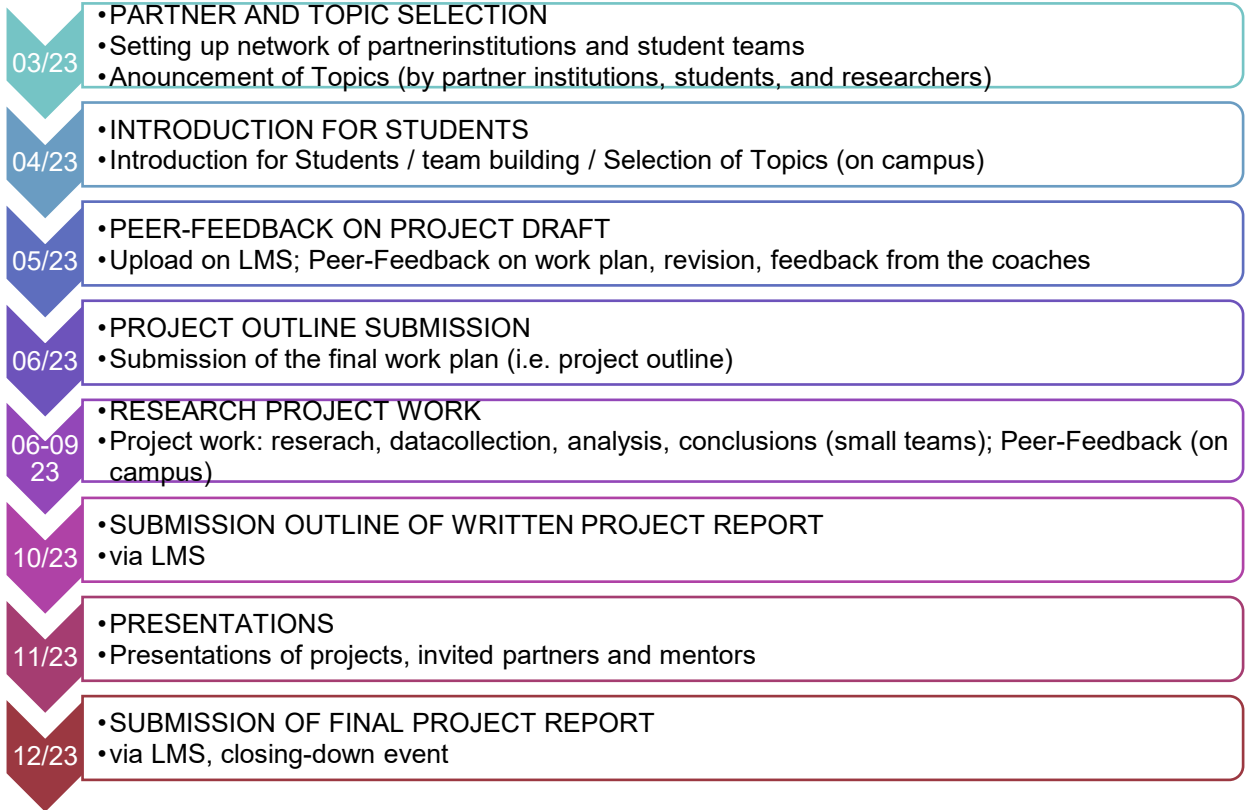
Unia Bern

Unia is a trade union engaging for fair working conditions and social benefits. Unia represents the interests of all employees and offers its members individual advice, legal protection and further services.

SH-Elektro Telematik GmbH

SH-Elektro is an electrical installation company with projects in construction, service and maintenance. The company also installs photovoltaic systems. The company has 14 employees and introduced the four-day week in September 2022.

PROGRAMME OVERVIEW (2023)



TESTIMONIALS

Testimonial from Colette (student, participant)



*"The module impressed me with its innovative and engaging design. A variety of teaching strategies were used to meet the individual needs of all participants in order to help them improving their skills and maximise the quality of the work to be produced. Particular emphasis was placed on the integration of different disciplines to enable trans- and interdisciplinary collaboration and the development of high quality collaborative projects. Of particular note is the way in which the course enabled students to see and solve complex problems from different perspectives. The practical and research-based projects promoted not only the application of scientific methods, but also the ability to work effectively in teams. I am particularly proud of the paper we wrote as part of the course on 'Acceptance of energy saving behaviours in the service sector from the perspective of employers and employees'. The excellent teamwork and support provided by the course enabled us to successfully integrate the different disciplines and produce high quality research.
Kind regards, Colette"*

Testimonial from Lorenzia (coach, research associate at CDE)

"The module is particularly characterised by its strong transdisciplinarity. As an assistant, I was able to accompany transformative student projects that demonstrated transformative effects in practice and encouraged students to critically analyse scientific theories. In addition, the format offers the opportunity to apply and reflect on scientific methods in a deep and concrete way. The diversity of sustainable development challenges and possible solutions was impressively demonstrated in the final presentations, which were attended by students, lecturers and practice partners."

Testimonial from Elias Bieri, Unia (practice partner)

"The module is valuable for exchange and networking between young academics and non-academic stakeholders. Together we can think of and find solutions for a sustainable development. Working with the students gave valuable insights towards a sustainable transformation in the real world, and make visible alternative futures."