Global Crises, Local Challenges

Introduction

The Global Crises, Local Challenges program aims to provide foundational knowledge of sustainable development to students from diverse disciplines. It employs challenge-based learning (CBL) principles to engage students in a real-life, global challenge situated in a local environment ("glocal challenge") while paying attention to vulnerable groups. To prepare for the challenge, students acquire knowledge about sustainable development, citizen science and leadership for sustainability. The program stimulates students to acquire necessary analytical skills while building competences to address societal challenges (e.g., systems thinking, anticipatory thinking). Afterwards, split in interdisciplinary groups, students engage in real-life learning working together with vulnerable groups and external stakeholders in local society to understand their problems and co-develop innovative and sustainable solutions. The challenge selected for the academic year 2022/23 include energy (e.g., energy poverty), waste (e.g., food waste), sustainable consumption and production (e.g., fast fashion). In addition to the CBL approach, the program is also based on 'Education for Sustainable Development' principles.

The target audience for this program is broad, targeting students from engineering to social sciences. Contributions on design, policy interventions, the psychology of vulnerable groups, feasible business cases, communication strategies and social innovations are all highly welcomed and encouraged. At the same time, it is our intention to make this program available to a small number of citizens in the local community to exchange the flow of ideas between students and citizens.

Entry requirements

Besides the standard requirements, no additional requirements are set.

Elective objectives

This section provides an overview of the program's learning objectives. The X2C's objectives are aligned with Education for Sustainable Development (ESD) eight key competences. ESD is holistic and transformational education recognised in Sustainable Development Goals.3 ESD competences are marked with an asterisk:

1. **SYSTEMS THINKING*:** The course aims to introduce students to systems thinking concepts. By the end of the course, students should be able to identify and describe various systems, analyse relationships among actors within the systems, explain interdependences and propose interventions. Such a competency is highly relevant as the world has become increasingly complex and globalised and systems are heavily interconnected and dependent upon each other. Solutions to societal, business, or environmental problems need to consider such complexities, such as building the necessary adaptative capacity into social, technical, or ecological systems considering the complex overarching challenge posed by the climate- and ecological crises.

2. **SUSTAINABLE DEVELOPMENT:** Students will be introduced to the concept of sustainable development and its multiple dimensions. As part of the course, they will learn about sustainable development policies and interventions over time and will take part in a debate discussing sustainable development interventions. This goal contributes to ESD critical thinking competency*.

3. EXPLORATORY DATA ANALYSIS AND DATA VISUALISATIONS: By employing inquiry-based learning, students will be introduced to publicly available statistical data available via the World Bank, OECD, UN, and

EC databases, next to those of national, regional, and local provenance (e.g., CBS, Kennispunt Twente, Enschede municipality). They will explore data visualisations to identify trends and insights. This goal contributes to ESD critical thinking competency*.

4. POLICY LEVERS: Students will learn about policy tools used to stimulate desirable actions or mitigate adverse effects (e.g., capacity tools, incentive tools, regulatory mechanisms). They will identify tools used in a case study, and discuss the advantages, complexities and possible (unintended) adverse effects of using these tools. We will discuss why engaging citizens in decision-making process may lead to better outcomes. This objective contributes to the ESD anticipatory competency by understanding how the use of policy levers can impact sustainable development outcomes*.

5. **CITIZEN SCIENCE & PARTICIPATORY ACTION RESEARCH:** After the theoretical part on citizen science and other relevant themes, students will work together with citizens of Twente region to define research questions, identify key challenges, collectively formulate problems, design solutions, and engage in feedback exchange. As part of a case study, students are encouraged to select a specific vulnerable group (e.g., homeless, unemployed, service-workers, migrants, or a low-income neighbourhood). Community members also participate in the learning process. This objective contributes to the ESD normative competency* as students become familiar with the norms of values of an external group, and discuss solutions and trade-offs for sustainable addressing societal problems in a sustainable and inclusive manner. . In the process, students will discover that many challenges involve 'wicked problems' in the sense that the definition of the problem and acceptable solutions are inherently contested among stakeholders.

6. INCLUSIVE LEADERSHIP: As part of program's skills sessions, students will learn about group dynamics, inclusive leadership styles and resolving conflicts. Afterwards, students will apply this knowledge while solving their selected sustainability challenge. This objective contributes to the ESD strategic and normative competencies*.

7. INTEGRATED PROBLEM-SOLVING COMPETENCY*: As part of their case study on vulnerable groups, students will be asked to integrate their previous knowledge in their final report, looking at local and international statistical data and public reports, available policy interventions in Enschede and the Netherlands, and triangulate this data with the insights obtained from the citizens. They will then propose a sustainable and inclusive solution to a local challenge.

8. SELF-AWARENESS COMPETENCY*: At the end of the course, students are asked to reflect on their learning experience, interaction with the vulnerable group and how their own personal experience has shaped their learning and conclusions. This should be conducted according to the three levels of action research reflection: 1st, 2nd, and 3rd person action research practice (individual, group, and organisation accordingly) where possible.

9. **COLLABORATION COMPETENCY*:** creative thinking (in groups), communication with peers and external stakeholders, organisation of group work, planning and implementation of the proposed solution in partnership with the community, vulnerable group, and other external stakeholders.

Overview of schedule

The total minor program is 15 ECTS. The core course will last 10 weeks, and is awarded 5 ECTS. This includes lectures, homework, and assessments. In the CBL part of the course (10 ECTS), running in tandem, interdisciplinary student groups will work together on a regional sustainability challenge of their choice, informed by a set of broader sustainability challenges that we outlined. They will have skills seminars here as well as group sessions, together and also under tutor supervision.