Solutions to Global Sustainability Challenges

Lösningar på globala hållbarhetsutmaningar
5 credits

Single subject course

746G74

Valid from: 2024 Autumn semester

Determined by	**Main field of study**	
Course and Programme Syllabus Board at the Faculty of Arts and Sciences	Environmental Science	
Date determined	**Course level**	**Progressive specialisation**
2024-04-09	First cycle	G1N
Revised by	**Disciplinary domain**	
	Natural sciences	
Revision date	**Subject group**	
	Environmental Science	
Offered first time	**Offered for the last time**	
Autumn semester 2024		
Department	**Replaced by**	
Institutionen för Tema		

Entry requirements

General entry requirements for undergraduate studies and English corresponding to the level of English in Swedish upper secondary education (Engelska 6 or Engelska nivå 2). Exemption from Swedish.

Intended learning outcomes

Upon completion of the course, students should be able:

- to describe the UNs Sustainable Development Goals
- to describe and analyse different solutions to global environmental problems in relation to ecological, economic and social dimensions of sustainable development
- to apply and compare different scientific perspectives on complex relationships between sustainability goals
- to apply methods to analyse how anaerobic digestion can be used to manage organic waste in order to promote the sustainability goals of good health, food security, improved climate, clean energy and circular economy

Course content

A number of the UN's Sustainable Development Goals (SDGs) concern environmental and climate aspects. The course provides students with background knowledge about the SDGs. The course deals with strategies for dealing with complex global environmental and sustainability problems. Particular focus is placed on technical solutions that are explored in laboratory experiments. In the laboratory exercises, we study how anaerobic digestion can be used to purify organic waste from environmental toxins and produce useful resources such as biogas and fertilizers.

Analysing solutions to complex sustainability challenges often requires interdisciplinary expertise. The chemical, biological and physical perspectives applied in the lab environment are therefore integrated with technical and social science knowledge of environmental issues. In this way, the course integrates perspectives from different scientific disciplines in the analysis of complex relationships between the SDGs to identify synergies and avoid goal conflicts.

Teaching and working methods

The teaching takes place remotely and consists of lectures, laboratory sessions, workshops, seminars, group work and written assignments. The laboratory work of the course is carried out with equipment that is connected to the internet and uses laboratory methods intended to identify and analyze technical solutions to sustainability challenges. The students are also expected to conduct self-study.

The language of instruction and examination is English.

Examination

The course is examined by:

- active participation in laboratory work, grading scale: EC (P/F)
- active participation in seminars, grading scale: EC (P/F)
- group work, grading scale: EC (P/F)
- individual written assignment, grading scale: EC

To obtain Pass (E) as a final grade, at least E is required on the individual assignment, and Pass on the other parts. Higher grade are based on the individual assignment.

Detailed information about the examination can be found in the course's study guide.

If special circumstances prevail, and if it is possible with consideration of the nature of the compulsory component, the examiner may decide to replace the compulsory component with another equivalent component.

If the LiU coordinator for students with disabilities has granted a student the right to an adapted examination for a written examination in an examination hall, the student has the right to it.

If the coordinator has recommended for the student an adapted examination or alternative form of examination, the examiner may grant this if the examiner assesses that it is possible, based on consideration of the course objectives.

An examiner may also decide that an adapted examination or alternative form of examination if the examiner assessed that special circumstances prevail, and the examiner assesses that it is possible while maintaining the objectives of the course.

Students failing an exam covering either the entire course or part of the course twice are entitled to have a new examiner appointed for the reexamination.

Students who have passed an examination may not retake it in order to improve their grades.

Grades

ECTS, EC

Other information

Planning and implementation of a course must take its starting point in the wording of the syllabus. The course evaluation included in each course must therefore take up the question how well the course agrees with the syllabus.

The course is conducted in such a way that there are equal opportunities with regard to sex, transgender identity or expression, ethnicity, religion or other belief, disability, sexual orientation and age.

If special circumstances prevail, the vice-chancellor may in a special decision specify the preconditions for temporary deviations from this course syllabus, and delegate the right to take such decisions.

About teaching and examination language

The teaching language is presented in the Overview tab for each course. The examination language relates to the teaching language as follows:

- If teaching language is “Swedish”, the course as a whole could be given in Swedish, or partly, or as a whole, in English. Examination language is Swedish, but parts of the examination can be in English.
- If teaching language is “English”, the course as a whole is taught in English. Examination language is English.
- If teaching language is “Swedish/English”, the course as a whole will be taught in English if students without prior knowledge of the Swedish language participate. Examination language is Swedish or English depending on teaching language.