AL2110 Hållbar livsmedelsproduktion och konsumtion 7,5 hp

Sustainable Food Production and Consumption

Fastställande

Betygsskala

A, B, C, D, E, FX, F

Utbildningsnivå

Avancerad nivå

Huvudområden

Miljöteknik, Maskinteknik

Särskild behörighet

At least 150 academic credits (ECTS) in a programme of engineering or natural science or the course MJ2615 Introduction to Industrial Ecology or equivalent.

Undervisningsspråk

Undervisningsspråk anges i kurstillfällesinformationen i kurs- och programkatalogen.

Lärandemål

After finishing the course, the student should be able to:

- describe and discuss how Circular Economy concepts and tools can support the transition towards a sustainable bioeconomy;

- discuss the pros and cons of a Circular Economy;

- assess a current sustainable development challenge with a hard (i.e. quantitative) systems approach;

- model stocks and flows of a selected system, as well as their disruption;

- compare the relative merits of a bio-based production systems with those of a fossil-based production systems (e.g. organic vs. conventional farming; renewable bioenergy vs. fossil fuels);

- identify sustainable natural resource management; and

- reflect upon one's own state of knowledge and identify additional information needs and skill development, and reflect upon one’s own abilities, strengths and weaknesses both in science and as a professionally active person and work team member.

Kursinnehåll

The course aims to show applications of Circular Economy principles to the management of natural resources. The course demonstrates the benefits of closing the loop (e.g. nutrient and water cycles) in bio-based systems, such as those associated to land use (e.g. agriculture and forestry), marine, and waste management (e.g. biowaste composting) systems. Topics covered include: bioeconomy and agroecology, disturbance of stocks and flows in the anthroposphere and the implications of perturbing global biogeochemical cycles on environmental change.

• Circularity in Bioeconomy vs. Fossil Economy

• Land, Oceans and Society (Food Systems, Forest Systems and Energy Systems)

• Global Cycles (Energy, Water, Biogeochemical: Carbon, Nitrogen, Phosphorus, Methane, Phosphorus, Sulphur)

• Human Appropriation of Stocks and Flows

• Ecosystem Services

• Ecological and Environmental Economics

Kursupplägg

• ATT1 - Attendance, 1.0 , grade scale: P, F

• PRO1 - Project, 5.0, grade scale: A, B, C, D, E, FX, F

• RED1 - Assessment, 1.5, grade scale: P, F

Kurslitteratur

To be described before course start

Utrustning

The course uses KTH's learning management system (LMS) as an important support. A computer with internet and e-mail and the possibility to use Word and Excel (Microsoft version recommended) and to read pdf- files is necessary. Other software (e.g. STAN) that is needed in the course will be downloadable from the internet or from the LMS or made available on KTH computers.

Examination

- PRO1 - Projekt, 5,0 hp, betygsskala: A, B, C, D, E, FX, F
- RED1 - Inlämning, 1,5 hp, betygsskala: P, F
- ATT1 - Närvaro, 1,0 hp, betygsskala: P, F

Examinator beslutar, baserat på rekommendation från KTH:s handläggare av stöd till studenter med funktionsnedsättning, om eventuell anpassad examination för studenter med dokumenterad, varaktig funktionsnedsättning.

Examinator får medge annan examinationsform vid omexamination av enstaka studenter.

När kurs inte längre ges har student möjlighet att examineras under ytterligare två läsår.

Övriga krav för slutbetyg

ATT1 - Attendance, 1.0 , grade scale: P, F

- PRO1 - Project, 5.0, grade scale: A, B, C, D, E, FX, F
- RED1 - Assessment, 1.5, grade scale: P, F

Etiskt förhållningssätt

- Vid grupparbete har alla i gruppen ansvar för gruppens arbete.
- Vid examination ska varje student ärligt redovisa hjälp som erhållits och källor som använts.
- Vid muntlig examination ska varje student kunna redogöra för hela uppgiften och hela lösningen.