



## COURSE SYLLABUS

### Bioinspirerad innovation för hållbarhet Bio-inspired Innovation for Sustainability 3 credits (3 högskolepoäng)

**Course code:** SL2547

**Main field of study:** Strategic Leadership towards Sustainability

**Disciplinary domain:** Technology

**Education level:** Second cycle

**Specialization:** AIN - Second cycle, has only first cycle course/s as entry requirements

**Subject area:** Industrial Engineering and Management

**Language of instruction:** English

**Applies from:** 2020-06-08

**Approved:** 2020-03-01

#### 1. Decision

This course is established by Dean 2019-12-02. The course syllabus is approved by Head of Department of Strategic Sustainable Development 2020-03-01 and applies from 2020-06-08.

#### 2. Entry requirements

Admission to the course requires a university education of at least 120 credits or equivalent. English 6.

#### 3. Objective and content

##### 3.1 Objective

The purpose of the course is to introduce and train students in bio-inspired innovation for sustainability. In an intense summer course with pre- and post work, the students will learn about bio-inspired innovation through hands-on application. In project work they will learn to use and create bio-inspired design solutions to address current sustainability challenges.

##### 3.2 Content

In this course, participants are introduced to Biomimicry - an innovation practice inspired by nature. In a project setting, students will address a particular design challenge in form, process, service, or whole system by developing potential solutions through the four phases of Biomimicry Thinking: scoping the project, discovering models in nature, creating concepts and prototypes, and evaluating the proposed innovations against the Biomimicry Life Principles (patterns of nature). The practice includes deep scientific research into biology and ecology to discover the strategies nature uses for surviving and thriving.

#### 4. Learning outcomes

The following learning outcomes are examined in the course:

##### 4.1 Knowledge and understanding

On completion of the course, the student will be able to:

- Explain the Biomimicry framework and practice

##### 4.2 Competence and skills

On completion of the course, the student will be able to:

- Use the six Biomimicry Master Life Principles
- Find strategies in nature to emulate into human-made products, services, processes, and systems
- Work with the four stages of Biomimicry Thinking
- Recognize the specific features of biomimetic innovations
- Lead Biomimicry innovation sessions

##### 4.3 Judgement and approach

On completion of the course, the student will be able to:

- Discuss what opportunities Biomimicry holds for innovation for sustainability

## 5. Learning activities

The course is project work based. Pre-reading helps the students familiarize themselves with the area. During the on-campus part, lectures introduce theories, concepts, methods and tools. These are deepened, applied, integrated and reflected upon through group work and interactive reflection. Due to the short time frame of the course, teachers give feedback quickly to improve the project. Teachers with different scientific backgrounds, professional experience and perspectives take part in the course. The students' different educational backgrounds, professional experience and cultural backgrounds are also taken advantage of in the learning process.

## 6. Assessment and grading

Modes of examinations of the course

Code	Module	Credits	Grade
2005	Written assignment	1 credits	GU
2015	Project assignment 1	1 credits	GU
2025	Project assignment 2	1 credits	GU

The course will be graded G Pass, UX Fail, supplementation required, U Fail.

Pass on all items is required to obtain a final grade. To be graded, the assignments must be submitted on-time. Late submissions, as well as poor-participation in project group activities, is considered as a fail for that submission opportunity, unless otherwise agreed with the course examiner. Two opportunities to perform failed assignments are offered within the next 12 months. Submission deadlines are decided by the course responsible and examiner. Further opportunities to perform failed assignments are provided at the next offerings of the course.

The course-PM for each course revision should include the assessment criteria and make explicit in which modes of examination that the learning outcomes are assessed.

An examiner can, after consulting the Disability Advisor at BTH, decide on a customized examination form for a student with a long-term disability to be provided with an examination equivalent to one given to a student who is not disabled.

## 7. Course evaluation

The course evaluation should be carried out in line with BTH:s course evaluation template and process.

## 8. Restrictions regarding degree

The course can form part of a degree but not together with another course the content of which completely or partly corresponds with the contents of this course.

## 9. Course literature and other materials of instruction

A compendium of articles and other resources will be shared with the students via the online learning platform.