

# Syllabus

for course at advanced level

**Systems Theory and Resilience Thinking**  
**Systemteori och resilienstagande**

**15.0 Higher Education  
Credits**  
**15.0 ECTS credits**

|                          |   |
|--------------------------|---|
| <b>Course code:</b>      | BL8049  |
| <b>Valid from:</b>       | Autumn 2019   |
| <b>Date of approval:</b> | 2010-08-20  |
| <b>Changed:</b>          | 2019-05-13  |
| <b>Department</b>        | Department of Biology Education                                     |
| <b>Main field:</b>       | Social-Ecological Resilience for Sustainable Development            |
| <b>Specialisation:</b>   | A1F - Second cycle, has second-cycle course/s as entry requirements |

## Decision

This syllabus has been approved by the Board of the Faculty of Science at Stockholm University.

## Prerequisites and special admittance requirements

Admission to the course requires knowledge equivalent to Social-ecological systems: challenges and approaches 15 credits. Swedish upper secondary school course English B/English 6 or equivalent.

## Course structure

| Examination code | Name                             | Higher Education Credits |
|------------------|----------------------------------|--------------------------|
| 8A49             | Systems thinking                 | 4                        |
| 8D49             | Regime shifts and transformation | 5                        |
| 8E49             | Resilience thinking              | 6                        |

## Course content

a. The course introduces qualitative and quantitative approaches to systems theory, and shows how they can be applied in to analyse social-ecological systems. Regime shifts, the reorganization of the structure and processes shaping a social-ecological system, are explored from a theoretical and practical perspective, including the investigation of a set of case studies. Resilience thinking uses systems concepts to understand such abrupt changes. Key resilience concepts will be introduced. Students will be introduced to theoretical concepts, methods for analysis, and conduct group and individual research projects that utilize these concepts and methods.

b. The course consists of the following course units:

- 1: Systems Thinking (4hp),
2. Regime Shifts and Transformations (5hp),
3. Resilience Thinking (6hp).

## Learning outcomes

Upon completion of the course, students are expected to be able to:

- Understand basic systems concepts and be able to apply basic systems analysis approaches (unit 1)
- Understand the concept of regime shifts and be familiar with a number of examples of regime shifts (unit 2).
- Define and apply concepts of resilience, adaptive cycle and panarchy to social-ecological systems (unit 1,2 & 3).

- Apply the concepts practically by conducting case studies based on existing methods and tools (unit 3)

### **Education**

Instruction consists of lectures, group exercises and seminars.

Participation in group exercises, seminars and any associated integrated instruction is compulsory. In the event of special circumstances, the examiner may, after consultation with the teacher concerned, grant a student exemption from the obligation to participate in certain compulsory instruction.

### **Forms of examination**

a. The course is examined as follows: Knowledge assessment takes the form of written and oral presentations and activity at seminars.

b. Grades will be set according to a seven-point scale related to the learning objectives of the course:

A = Excellent

B = Very good

C = Good

D = Satisfactory

E = Adequate

Fx = Fail, some additional work required

F = Fail, much additional work required

c. The grading criteria will be distributed at the beginning of the course.

d. In order to pass the course, students must receive a passing grade on all course units and participate in all mandatory instruction. The final grade on the course is determined by weighting the grades from all course units, where each grade is weighted in relation to the scope of the course unit.

e. Students who receive a failing grade on a regular examination are allowed to retake the examination as long as the course is still provided. The number of examination opportunities is not limited. Other mandatory course elements are equated with examinations. A student who has received a passing grade on an examination may not retake the examination to attain a higher grade. A student who has failed the same examination twice is entitled to have another examiner appointed, unless there are special reasons to the contrary. Such requests should be made to the department board. The course includes at least two examination opportunities for each course unit per year when the course is given. At least one examination opportunity will be offered during a year when the course is not given.

f. Students awarded the grade Fx are given the opportunity to improve their grade to E. The examiner decides the supplementary assignments to be performed and the pass mark criteria. The supplementary assignments will take place before the next examination session.

### **Interim**

Students may request that the examination be conducted in accordance with this course plan even after it has ceased to be valid. However, this may not take place more than three times over a two year period after course instruction has ended. Requests must be made to the departmental board. The provision also applies in the case of revisions to the course plan (and the revisions of the course literature).

### **Limitations**

The course may not be included in examinations in combination with the course Natural Resources and Society 15 hp (BL7013) or equivalent.

### **Misc**

The course is part of the Master's Programme in Resilience in Social-Ecological Systems, but can also be read as a separate course.

### **Required reading**

The course literature is decided by the department board and published on the course page in the online course catalogue at least two months before the start of the course.