



LUND UNIVERSITY  
Faculty of Science

## SYLLABUS

Date  
12 October 2016

Reg. No.  
U 2016/93

### **Syllabus for the course Evolutionary Processes, NABI005** *Swedish title: Evolutionära processer*

The course syllabus was confirmed by the Faculty board for graduate studies 12 October 2016. The course is in the third cycle and amounts to 2 credits.

*The course syllabus is formally approved in Swedish. This is a translation.*

#### **Learning outcomes**

On completion of the course, participants shall be able to:

##### *Knowledge and understanding*

- Describe the basic mechanics of Evolution through Natural Selection at levels of biological organization ranging from a single gene or protein to a community of interacting species.

##### *Skills and abilities*

- Apply basic evolutionary concepts to identify the possible evolutionary forces that may act on any given organism (or gene), and the possible (ecological or other) feedback loops that may be involved.

##### *Judgement and approach*

- Identify the most likely evolutionary processes that can explain a given evolutionary outcome.
- Evaluate a given scenario to hypothesize on possible future evolutionary outcomes.

#### **Course content**

Selection and Drift.

Adaptive landscapes, adaptations and frequency dependent selection.

Evolutionary constraints, canalization, plasticity and G-functions.

Ecological diversification and speciation.

Community and macroevolution.

*Guest lectures:* Protein evolution, Sexual selection and The evolution of cooperation.

#### **Teaching**

Lectures, exercises, group discussions and the writing of an assessment portfolio.

#### **Assessment**

Assessment is based on an assessment portfolio that is written during the course.

#### **Grading scale**

Possible grades are Pass and Fail. To pass the course, the student must demonstrate an understanding of the course content through an approved assessment portfolio.

**Language of instruction**

English.

**Entry requirements**

Admitted to third cycle studies in biology.

**Additional information**

The course is compulsory for PhD students in biology at Lund University.