

Syllabus

for course at advanced level

Paleoecology, genetics and human prehistory
Paleoekologi, genetik och människans förhistoria

**15.0 Higher Education
Credits**
15.0 ECTS credits

Course code:	BL7052
Valid from:	Spring 2018
Date of approval:	2023-11-21
Department	Department of Biology Education
Main field:	Biology
Specialisation:	A1N - Second cycle, has only first-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 a Bachelor's degree in any of the disciplines archeology, bio-earth science, biology or molecular biology. Swedish upper secondary school course English B/English 6 or equivalent.

Course structure

Examination code	Name	Higher Education Credits
DEL1	Ancient DNA - theory and practice	3
DEL2	Ecology and evolution during the ice age	6
DEL3	The human evolution	6

Course content

a. The course provides knowledge on different processes that have affected the evolution and distribution of wild animals, plants and humans during the last 2.6 million years. To generate an understanding of how this scientific knowledge has been generated, the course also showcases methodological aspects within molecular palaeobiology and archaeology, including analysis of ancient DNA. In addition, the course provides a description of how environmental changes during cold ice ages and warm interglacials during the last 2.6 million years have affected wild animals and plants, as well as an overview of human evolution during this time period and how genomic tools can be used to study the evolution of *H. sapiens* and *H. neanderthalensis*. The course also comprises practical work, such as DNA analysis, and a theoretical summary of different methods that can be used to analyse prehistoric samples.

b. The course consists of the following course units:

1. Ancient DNA - theory and practice 3 hp
2. Ecology and evolution during the ice age 6 hp
3. The human evolution 6 hp

Learning outcomes

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

Unit 1. Ancient DNA – theory and practice, 3 hp:

- conduct practical ancient DNA analysis
- describe the specific properties of ancient DNA

- put the evolution of wild animals, plants and humans into a broader context through a synthesis of knowledge from the different research fields described in the course

Unit 2. Ecology and evolution during ice ages, 6 hp:

- describe basic theoretical knowledge about evolutionary and ecological processes during the last ice age
- provide an overview of the methodological analyses that are used during studies of prehistoric materials, such as genetic analysis, isotope analysis and chronological dating methods
- describe how the environment has changes during the last 2.6 million years
- put the evolution of wild animals, plants and humans into a broader context through a synthesis of knowledge from the different research fields described in the course

Unit 3. Human evolution, 6 hp:

- describe basic theoretical knowledge about evolutionary and ecological processes during the last ice age
- provide an overview of the material anthropological chronology during the last 2.6 million years
- put the human species that have existed during the last 2.6 million years into a chronological context
- put the evolution of wild animals, plants and humans into a broader context through a synthesis of knowledge from the different research fields described in the course

Education

Instruction consists of lectures, seminars, laboratory work and group work. Participation in seminars, laboratory work and group work 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 of unit 1 takes the form of written presentation and for unit 2 and 3 through written examination as well as written presentation.

If the instruction is in English, the examination may also be conducted in English.

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

The course unit 1 will be graded according to a two-point scale: Pass (G) or Fail (U).

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).

Misc

The course is offered in collaboration with the department of archaeology and can be a component of master's programme in biology or archaeology. It can also be taken as an individual course.

Required reading

Course literature is decided by the departmental board and is published on the course page in the online course catalogue at least 2 months before the course starts.