

Syllabus

for course at advanced level

**Paleogenetics
Paleogenetik**

**15.0 Higher Education
Credits
15.0 ECTS credits**

Course code:	BL7069
Valid from:	Autumn 2022
Date of approval:	2022-09-07
Department	Department of Biology Education
Main field:	Biology
Specialisation:	A1N - Second cycle, has only first-cycle course/s as entry requirements

Decision

This course syllabus was approved by the Board of Science at Stockholm University on September 7, 2022

Prerequisites and special admittance requirements

For admission to the course, knowledge is required equivalent to Bachelor's degree in one of the subjects archaeology, biology-earth science, earth science, biology or molecular biology. English 6 or equivalent.

Course structure

Examination code	Name	Higher Education Credits
DEL1	Ancient DNA - theory and practice	3
DEL2	Prehistoric evolution in wild organisms and humans	12

Course content

a. This course addresses various processes that have affected the development and spread of wild animals, plants and humans over the past 2.6 million years. In order to create an understanding of how this scientific knowledge was constructed, the course also includes a review of methodological aspects within molecular palaeobiology and archaeology, including analyses of prehistoric DNA (paleogenetics). The course also provides an overview of how environmental changes during ice ages and heat periods over the past 2.6 million years have affected various 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 development of, for example, *H. sapiens* and *H. neanderthalensis*. The course also includes practical elements such as DNA laboratory sessions, as well as a theoretical review of various methods for analysing prehistoric samples.

b. The course consists of the following modules:

1. Ancient DNA - theory and practice (Ancient DNA - theory and practice) 3 credits
2. Prehistoric evolution and ecology in wild organisms and humans (Prehistoric evolution and ecology in wild organisms and humans) 12 credits.

Learning outcomes

After completing the course, the student is expected to be able to:

Module 1, Prehistoric DNA - theory and practice, 3 credits:

- carry out practical prehistoric DNA analysis
- explain the specific peculiarities of prehistoric DNA
- put the development of wild animals and plants, as well as humans in a context through a synthesis of knowledge from the various research fields as the course concerned.

Module 2, Prehistoric evolution and ecology of wild organisms and humans, 12 credits:

- present basic theoretical knowledge of evolutionary and ecological processes during the last ice age
- give an overview of the methodological analyses used in the study of prehistoric material, for example genetic analysis, isotope analysis, dating methodology
- account for how the environment has changed during the last 2.6 million years
- account for basic theoretical knowledge about evolutionary and ecological processes during the last ice age
- put the human species that existed during the last 2.6 million years in chronological relation to each other
- give an overview of evolutionary and demographic processes in humans in the last 2.6 million years
- put the development of wild animals and plants, as well as humans in a context through a synthesis of knowledge from the various research fields covered by the course.

Education

Teaching consists of lectures, seminars, exercises, laboratory sessions and group work.

The course is offered in English.

Forms of examination

a. The course is examined as follows: Assessment of module 1 takes place through written reports.

Assessment of module 2 takes place through written exam and written reports.

The examiner can decide on adapted or alternative examination formats for students with disabilities.

The examination will be conducted in English.

b. A passing final grade requires participation in laboratory sessions and group work. If special reasons exist, following consultation with the teacher involved, the examiner may grant the student exemption from the obligation to participate in certain compulsory instruction.

c. Grading: The course's final grade is set according to a seven-point criterion-referenced scale:

A = Excellent

B = Very good

C = Good

D = Satisfactory

E = Adequate

Fx = Failed, some additional work is required

F = Failed, much additional work is required

Grades of module 1 will be set according to a two-point grading scale: fail (U) or pass (G).

Grades of module 2 will be set according to a seven-point criterion-referenced scale.

A passing final grade requires passing grades on all included parts.

The course's final grade is set based on the grading of module 2.

d. The course's grading criteria are handed out at the start of the course.

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 three examination opportunities for each course module per academic year the course is offered. For the academic years that the course is not offered, at least one examination opportunity is offered.

f. Students awarded the grade Fx are given the opportunity to improve their grade to E. The examiner decides on the supplementary assignments to be performed and the pass mark criteria. The supplementary assignments will take place before the next examination opportunity. Upon a passing supplementation of deficiencies in understanding – minor misunderstandings, minor inaccuracies or too limited reasoning in some parts – the grade E is used. Upon a passing supplementation of basic formality errors, the grades A-E are used.

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 the course was discontinued. Requests must be made to the departmental board. The provision also applies in the case of revisions of the course syllabus and revisions of the required reading.

Limitations

This course may not be included in a degree together with the course Paleoecology, genetics and human prehistory (BL7052) or with equivalent courses.

Misc

The course is given in collaboration with the Department of Archeology and Classical Studies. The course

can be part of Master's programmes in biology, earth sciences or archaeology, and can also be given as an independent course.

Required reading

The required reading is decided by the department board and published on the courses page in the online catalogue at least 2 months before the start of the course.