

Syllabus

for course at first level

Molecular Genetics

Molekylärgenetik

7.5 Higher Education

Credits

7.5 ECTS credits

Course code:	BL5023
Valid from:	Spring 2020
Date of approval:	2014-03-10
Changed:	2020-03-09
Department	Department of Biology Education
Main field:	Biology
Specialisation:	G1F - First cycle, has less than 60 credits in first-cycle course/s as entry requirements

Decision

This course syllabus was approved by the Board of Science at Stockholm University on 09/03/2020.

Prerequisites and special admittance requirements

For admission to the course, knowledge is required equivalent to Basic Chemistry- Inorganic, Physical, Organic and Biochemistry 30 credits (KZ2002), and Cell and Molecular Biology 27 credits (BL3008).

Course structure

Examination code	Name	Higher Education Credits
DEL1	Theory	4.5
DEL2	Laboratory exercises	3

Course content

a. This course addresses genetic processes and methods in eukaryotic and prokaryotic organisms. Important elements include: Mendelian genetics (recombination and meiosis), the structure and maintenance of the genome (chromatin structure, replication and DNA repair), the expression of the genome (transcription, protein synthesis and RNA splicing), the regulation of gene expression, and the methods used to study molecular genetics.

b. The course consists of the following modules:

1. Teori (Theory), 4.5 credits
2. Laborationer (Laboratory exercises), 3 credits.

Learning outcomes

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

- explain fundamental concepts of molecular genetics, such as recombination, meiosis, the structure of chromatin, replication, transcription and translation (module 1)
- describe the molecular mechanisms that form the basis of processes in molecular genetics, and to have knowledge of the proteins involved (module 1)
- compare prokaryotes and eukaryotes with respect to similarities and differences in fundamental processes of

molecular genetics (module 1 and 2)

- give examples of how gene expression is regulated and the levels of transcription and translation (module 1 and 2)
- assess how different methods can be applied to approach different questions within molecular genetics (module 1 and 2).

Education

Teaching consists of lectures, seminars, laboratory exercises and group discussions. The course is offered in English.

Forms of examination

a. The course is examined as follows: Assessment of module 1 takes place through written examination and assessment of module 2 takes place through written and oral presentations. 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 seminars, laboratory exercises and group discussions. 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 seven-point criterion-referenced scale.

Grades of module 2 will be set according to a two-point grading scale: fail (U) or pass (G).

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

The course's final grade is set based on the grading of module 1.

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.

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.

Misc

This course is part of the Bachelor's Programme in Molecular Biology, but may also be taken as a separate course.

Required reading

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