

Syllabus

for course at first level

Molecular Genetics
Molekylärgenetik

7.5 Higher Education
Credits
7.5 ECTS credits

Course code:	BL5023
Valid from:	Autumn 2014
Date of approval:	2014-03-10
Department	Department of Biology Education
Subject	
Specialisation:	G1F - First cycle, has less than 60 credits in 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

Admittance to the course requires knowledge 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
5A23	Theory	4.5
5B23	Laboratory exercises	3

Course content

a. The course covers 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 includes the following elements:

1. Theory – 4.5 credits
2. Laboratory exercises – 3 credits.

Learning outcomes

After taking 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
- * describe the molecular mechanisms that form the basis of processes in molecular genetics, and to have knowledge of the proteins involved
- * compare prokaryotes and eukaryotes with respect to similarities and differences in fundamental processes of

molecular genetics

□ give examples of how gene expression is regulated and the levels of transcription and translation

* assess how different methods can be applied to approach different questions within molecular genetics.

Education

The education consists of lectures, seminars, laboratory exercises and group discussions.

Participation in seminars, laboratory exercises and group education associated with this is compulsory. An examiner may rule that a student is not obliged to participate in certain compulsory education if there are special grounds for this after consultation with the relevant teacher.

Forms of examination

a. Examination for the course is in the following manner: measurement of knowledge for element 1 takes place through: Written examination and for element 2 written examination as well as written and oral presentations.

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

b. Grading is carried out according to a 7-point scale related to learning objectives:

A = Excellent

B = Very Good

C = Good

D = Satisfactory

E = Sufficient

Fx = Fail

F = Fail

c. Grading criteria for the course will be distributed at the start of the course.

d. A minimum grade of E is required to pass the course, together with:

• approved laboratory exercise

• participation in all compulsory education

e. Students who fail an ordinary examination are entitled to sit additional examinations as long as the course is offered. There is no restriction on the number of examinations. Examinations also include other obligatory elements of the course. Students who have passed an examination may not resit it in order to achieve a higher grade. Students who have failed on two occasions are entitled to request the appointment of a different examiner for the next examination. Any such request must be made to the departmental board.

The course has at least two examinations for each element) for each academic year in the years in which instruction is provided. Intervening years include at least one examination.

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 is carried out in accordance with this syllabus even after it has ceased to apply. This right is limited, however, to a maximum of three occasions during a two-year-period after the end of giving the course. A request for such examination must be sent to the departmental board.

Misc

The course is a component of the Master's Programme in Molecular Biology, and it can also be taken as an individual course.

Required reading

Course literature is decided by the departmental board and is described in an appendix to the syllabus.