

Syllabus

for course at first level

Methods and Concepts in Molecular Life Sciences
Metoder och koncept inom molekylära livsvetenskaper

15.0 Higher Education Credits
15.0 ECTS credits

Course code:	BL4015
Valid from:	Spring 2013
Date of approval:	2012-01-16
Changed:	2012-10-08
Department	Department of Biology Education
Main field:	Biology
Specialisation:	G2F - First cycle, has at least 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 (KZ2001), including a minimum of 7,5 credits in Biochemistry and Cell and Molecular Biology 30 credits.

Course structure

Examination code	Name	Higher Education Credits
4015	Methods and Concepts in Molecular Life Sciences	15
4C15	Theory	7
4D15	Case study	2
4B15	Laboratory exercises	6

Course content

- a) The course covers methods and experimental tools used in molecular cell biology and genome research to study structure and function of eukaryotic and prokaryotic organisms. The method's theoretical foundations and their applications in specific research contexts are presented. The theoretical part deals with the following: recombinant DNA, analysis of gene expression, "high-throughput" methods, structural analysis, model systems, genetic assays, biochemical analyzes, as well as sequencing, metagenomics, molecular ecology, microarrays, proteomics, bioinformatics and annotation of genomes.
- b) The course includes the following elements:
1. Theory 7 credits.
 2. Case study 2 credits.
 3. Laboratory exercises 6 credits.

Learning outcomes

It is expected that the student after taking the course will:

- * be able to present in-depth knowledge of modern methods for studying the structure and function of

biomolecules and macromolecular complexes

* be able to describe the theory of the methods that lie behind functional genome research

* be able to demonstrate practical skills in relevant methodologies, as well as planning experiments and critically analyzing experimental results

* be able to demonstrate understanding of how the methods are applied in research and in the community•

Education

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

Participation in seminars/group discussions and 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.

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 element 2

• participation in all compulsory education

e. Students who fail to achieve a pass grade in an ordinary examination have the right to take at least further four examinations, as long as the course is given. The term “examination” here is used to denote also other compulsory elements of the course. Students who have achieved a pass grade on an examination may not retake this examination in order to attempt to achieve a higher grade. Students who have failed to reach a pass grade on two occasions have the right to request that a different teacher be appointed to set the grade of the course. A request for such appointment must be sent to the departmental board.

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.