Department of Biology Education

Stockholm University

Syllabus

for course at first level

Genes, Cells and Populations
Gener, celler och populationer

15.0 Higher Education Credits
15.0 ECTS credits

Course code:	BL2011
Valid from:	Autumn 2007
Date of approval:	2006-09-27
Department	Department of Biology Education
Subject	Biology
Specialisation:	G1N - First cycle, has only upper-secondary level entry requirements

Decision

This syllabus has been approved by the Board of the Faculty of Science at Stockholm University.

Prerequisites and special admittance requirements

Matematik C och Naturkunskap B.

Course structure

Examination code	Name	Higher Education Credits
2A11	Cell and Molecular Biology and Genetics	4.5
2B11	Microbiology	4.5
2C11	Evolution and Conservation of Populations	6

Course content

a. The course covers basic Cell biology, Molecular biology, Genetics and Microbiology.
b. The course includes the following elements: Cell biology, Molecular biology, and Genetics 4.5 ECTS. The element includes fundamental processes in the cell, e.g. replication, transcription, translation, energy metabolism, cell signalling, cell cycle control, mitosis and meiosis, as well as mutation, recombination, and transmission genetics. The course discusses cells from a holistic perspective, with focus on eukaryotic cells. Microbiology 4.5 ECTS. The element deals with the construction and diversity of microorganisms, with focus on bacteria, archaea, and viruses, the importance of microorganisms in soil and water, and interactions with animals and plants. Evolution and Conservation of Populations 6 ECTS. The element deals with the evolutionary processes that govern the survival and development of natural populations. Basic population genetics and conservation genetics are included in the element as well as evolutionary biology, conservation biology and statistics.

Learning outcomes

It is expected that the student after taking the course will be able to:
• describe different processes in the cell and the resulting consequences if these processes fail. • use basic methods for practical work with prokaryotic and eukaryotic cells.
• demonstrate basic knowledge of the function and morphology of bacterial and arcahaeal cells.
• explain what processes that influence the genetic structure, survival, and evolution of populations, and how these processes are linked to management of natural populations.
• show knowledge of basic statistical concepts.

Education

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

Participation in group discussions, exercises, 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 takes place through: Written and/or oral examination

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 laboartory exercises
- approved written and oral presentations
- 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.

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.

Limitations

The course can not be included in a degree together with the courses Biology 45 p (BI1100), Molecular Cell Biology 5 p (BIA160), Microbiology 3 p (BI1120), Genetics och evolution 5 p (BIA170), Cell and Molecular Biology in the Biology-Earth Sciences Programme 7 p (BI1690), Biology 40 p (BI1880), Cell and Molecular Biology 10 p (BI2280), Cell and Molecular Biology (BI2000), Prokaryotic Cell and Molecular Biology 4 p (BI2260), Molecular Cellbiology 9 p (BI2230), Genetics 5 p (BI2240) or the equivalents.

Misc

The course is a component of the Bachelor's Programme in Biology-Earth Sciences, 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.