

# Syllabus

for course at first level

**Genomics, Bioinformatics and Biostatistics**  
**Genomik, bioinformatik och biostatistik**

**7.5 Higher Education**  
**Credits**  
**7.5 ECTS credits**

<b>Course code:</b>	BL4002
<b>Valid from:</b>	Autumn 2007
<b>Date of approval:</b>	2006-07-24
<b>Department</b>	Department of Biology Education
<b>Subject</b>	Biology

## 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 30 credits in Chemistry, including a minimum of 7,5 credits in Biochemistry, and Cell and Molecular Biology 30 credits. (Three credits corresponds to approximately two weeks full-time studies).

## Course structure

Examination code	Name	Higher Education Credits
4002	Genomics, Bioinformatics and Biostatistics	7.5

## Course content

The course covers basic methods and concepts in systems biology with focus on bioinformatics and biostatistics tools required for the planning and analysis of large experiments. Theoretical parts include: genome sequencing, metagenomics and molecular biology, microarrays and proteomics. Genome annotation and bioinformatics. Data analysis and biostatistics. Project design and planning for large "high throughput" experiments. Computer practicals include gene annotation, statistical problems with a molecular angle and practical problems based on the theoretical part.

## Learning outcomes

It is expected that the student after taking the course will be able to: • describe the theory behind most of the methods used in functional genomics • evaluate which methods are most suitable to address a given scientific problem • interpret results from experiments that include functional genomics.

## Education

The education consists of lectures, computer exercises, group work and seminars. Participation in computer exercises, group work, seminars 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 laboratory exercises
- approved group work
- 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.

#### **Misc**

The course is a component of the Bachelor's Programmes 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.