



Faculty of Science

BIOA01, Biology: Genetics and Microbiology, 15 credits

Biologi: Genetik och mikrobiologi, 15 högskolepoäng

First Cycle / Grundnivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2012-11-21 and was last revised on 2015-12-21. The revised syllabus applies from 2016-01-01, spring semester 2016.

General Information

The course is a compulsory first-cycle course for a degree of Bachelor of Science in Biology and Molecular Biology.

Language of instruction: Swedish

Main field of studies

Molecular Biology

Biology

Depth of study relative to the degree requirements

G1F, First cycle, has less than 60 credits in first-cycle course/s as entry requirements

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Learning outcomes

The aim of the course is that the students shall acquire the following knowledge and skills:

Knowledge and understanding

On completion of the course the student shall be able to:

- account for and explain the structures and functions of chromosomes at the molecular level
- account for the genetics of bacteria
- describe common gene and biotechnologies
- describe different working areas within genetics

Competence and skills

On completion of the course the student shall be able to:

- master basic genetic analysis
- apply genetic working methods
- write a laboratory report

Judgement and approach

On completion of the course the student shall be able to:

- evaluate and discuss laboratory results
- demonstrate an understanding of the scientific view and critically evaluate scientific statements

Course content

The course consists of two parts: Microbiology and Genetics.

The course covers inheritance systems, mechanisms for sex determination, recombination, gene mapping, chromosome analysis, and transfer of genetic material between bacteria. Furthermore, the organisation of the genome for various types of organisms, mutations, DNA repair, gene expression and its regulation in various types of organisms, are addressed. Additional subjects are the genetics of cellular differentiation, immunogenetics, organelle genetics, mobile DNA elements, gene technology and bioinformatics. Genetically modified organisms and the practical applications of gene technology are discussed, as well as clinical genetics, population genetics, evolution and phylogeny.

Course design

The teaching consists of lectures, teacher-supervised individual studies, calculation exercises, bioinformatics exercises and laboratory sessions. Participation in laboratory sessions and exercises is compulsory.

Assessment

Examination takes place as written examinations during the course. For students who have not passed the regular examination, an additional examination in close connection to this is offered.

Subcourses that are part of this course can be found in an appendix at the end of this document.

Grades

Marking scale: Fail, Pass, Pass with distinction.

To pass the entire course, approved examinations, approved laboratory reports, approved written assignments as well as participation in all compulsory parts are required. The final grade is decided through a weighing of the results of the parts that are included in the examination.

Entry requirements

For admission to the course, knowledge corresponding to MOBA01 Cell Biology 15 credits is required.

Further information

The course may not be included in a degree together with BIO006 Genetics and Microbiology 15 credits.

Subcourses in BIOA01, Biology: Genetics and Microbiology

Applies from H15

- 1211 Exam 1, 6,0 hp
Grading scale: Fail, Pass, Pass with distinction
- 1212 Exam 2, 7,5 hp
Grading scale: Fail, Pass, Pass with distinction
- 1213 Laboratory Work, 1,5 hp
Grading scale: Fail, Pass

Applies from H14

- 0713 Laboratory Work, 1,5 hp
Grading scale: Fail, Pass
- 1201 Exam 1, 7,5 hp
Grading scale: Fail, Pass, Pass with distinction
- 1202 Exam 2, 6,0 hp
Grading scale: Fail, Pass, Pass with distinction