Genetics

Programme course

6 credits

Genetik

NBIA24

Valid from: 2017 Spring semester

Determined by
Board of Studies for Chemistry, Biology and Biotechnology

Date determined
2017-01-25

Main field of study
Biology, Chemical Biology

Course level
First cycle

Advancement level
G1X

Course offered for
- Chemical Biology, M Sc in Engineering
- Biology, Bachelor´s Programme

Entry requirements
Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

Prerequisites
Biochemistry 1 or corresponding

Intended learning outcomes
The aim of the course is to provide basic knowledge of genetics. After completing the course the student will be able to:

- describe the stucture and funktion of chromosomes
- give an account of mechanisms for mitosis, meiosis and other fundamental genetic terminology
- describe the basis of heredity
- give an account of Hardy-Weinberg equilibrium and how evolutionary processes affects allele and genotype frequencies in a population
- analyse the result of crosses between different genotypes
- give an account of the causes of genetic diversity in individuals and populations
- discuss questions concerning the role of genetics in society

Course content

The course introduces genetic principles. Mechanisms for mitosis, meiosis and the cell cycle. The basis of heredity and basic genetic analysis. The structure and function of chromosomes. Genetic mapping. Mutations. Recombination. Populations as genetic systems. Basic practical genetic skills.

Teaching and working methods

The course consists of lectures, laboratory work, group exercises and a group project about the role of genetics in society that runs throughout the course and is presented in a seminar. The course uses a course event room at LISAM where course information and course material can be obtained.
During the group exercises the students solve genetic problems and questions together, some of which are later to be reported at the course event room. The group project is presented orally in a seminar through cross group discussions. The laboratory sessions relates to practical and theoretical aspects related to the course content.

Examination

LAB1	Laboratory work	1.5 credits	U, G
TEN1	Written examination	4.5 credits	U, 3, 4, 5

For the laboratory course lab reports should be submitted and approved when required. Active participation at the oral presentation of the group project is also required. The course is further examined though a written exam with multiple choice questions of a type practiced thoughout the course.

Grades

Four-grade scale, LiU, U, 3, 4, 5

Other information

Supplementary courses: Molecular Genetics, Genes and Gene Expression

Department

Institutionen för fysik, kemi och biologi

Director of Studies or equivalent

Agneta Johansson

Examiner

Jenny Hagenblad

Course website and other links

http://cms.ifm.liu.se/edu/biology/

Education components

Preliminary scheduled hours: 50 h
Recommended self-study hours: 110 h

Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at http://styrdokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva.