Gene Technology

Programme course

3 credits

Genteknik

TFKE38

Valid from: 2017 Spring semester

Determined by
Board of Studies for Chemistry, Biology and Biotechnology

Date determined
2017-01-25

Main field of study
Biotechnology, Chemical Biology

Course level
First cycle

Advancement level
G2X

Course offered for
- Protein Science, Master's Programme
- Chemical Biology, M Sc in Engineering
- Chemical Biology

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

Intended learning outcomes
The course will give fundamental knowledge and experimental skills in the following areas of Molecular Biology: Site-specific mutagenesis, gene cloning and PCR After studies well learned the student will have proficiency to:

- Understand basic laboratory techniques in molecular biology techniques to perform site-directed mutagenesis, amplification of DNA fragments using PCR and cloning of DNA fragments
- Describe different types of vectors for cloning and expression of eukaryotic genes in a prokaryotic system
- Theoretical knowledge of DNA sequencing
- Theoretical and practical knowledge of techniques for purification of plasmid DNA
- Describe the function and applications of different enzymes involved in gene cloning experiments

Course content
Purifications of DNA, manipulation of DNA, cloning of genes into E.coli vectors, control of gene expression, differences in prokaryotic and eukaryotic genes, mutation analysis, DNA-sequencing.

Teaching and working methods
The theory is mainly presented in lectures. Solving of problems, discussions of theoretical and practical aspects of experiments in the laboratory are performed in lessons. Theoretical and practical aspects are illustrated in the laboratory course. The results of the experimental work should be presented and discussed in written reports. Laboration course in site-directed mutagenesis.

Examination

LAB1	Laboratory work	1 credits	U, G
TEN2	Written examination	2 credits	U, 3, 4, 5

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

Other information
Supplementary courses: Protein chemistry.

Department
Institutionen för fysik, kemi och biologi

Director of Studies or equivalent
Magdalena Svensson

Examiner
Lars-Göran Mårtensson

Education components
Preliminary scheduled hours: 42 h
Recommended self-study hours: 38 h

Course literature
T.A. Brown: Gene Cloning and DNA analysis, 6th edition.

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.