DD2450 Algorithmic Bioinformatics 6.0 credits

Algoritmisk bioinformatik

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for DD2450 valid from Spring 2009

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Biotechnology,Computer Science and Engineering,Information Technology,Information and Communication Technology

Specific prerequisites

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After successfully taking this course, students will be able to:

- give their own account gene regulation, the central dogma, mutations that affect the genome, and experimental high-throughput techniques,
- implement, describe, and discuss the algorithms treated during the course as well as how they relate to each other,
- apply the fundamental algorithm design methodologies dynamic programming, MCMC, and EM to problems in computational biology and bioinformatics,
- apply, describe, and discuss the modeling principles parsimony, maximum likelihood, and bayesian modelling.

Course contents

Algorithms for problems such as alignment, phylogeny, sorting by reversals. An introduction to Hidden Markov Models.

Course literature

To be announced at least 2 weeks before course start at the web page for the course. Previous year material produced at the department was used.

Examination

- ÖVN1 - Exercises, 6.0 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

Other requirements for final grade

Written exercises (OVN1; 6 university credits).

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.