FSK3516 Mathematical Modeling in Cellular Biophysics 6.0 credits

Matematisk modellering i cell fysik

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

Establishment

Course syllabus for FSK3516 valid from Autumn 2018

Grading scale

G

Education cycle

Third cycle

Specific prerequisites

The student should have been accepted as a PhD student.

Language of instruction

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

Intended learning outcomes

The course will provide an introduction to deeper studies of various tools for modeling of biological processes, with a focus on the modeling of cell physiology. The aim of the course for the student to ultimately be able to choose the right tools for in-depth studies of cellular systems.

Course contents

Training in the use of current modelling tools: various simulation and modeling toolboxes in Matlab, Comsol multiphysics, eCell, mCell and VirtualCell.

Disposition

The course consists of two parts.:
1) an introduction to the various tools, which is done in the form of seminars.
2) a project work with at least two chosen tools to illustrate a current issue in the cell's physics.

Course literature

Distributed material as well as online material for the various tools

Examination

- PRO1 - Project work, 6.0 credits, grading scale: P, 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.

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

PRO1) project work, 6.0 credits, grading scale: P/F

Other requirements for final grade

The examination takes place at a seminar and with a written report where the student reports results and makes a comparative analysis of the different tools chosen for the project work.

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.