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 Spring 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, in particular concerning modeling of cell physiology.The aim of the course is for the student should be able to choose the right tools for an in-depth study of a given cellular system.

Course contents

Current tools are Matlab with various simulation and modeling toolboxes, Comsol multi-physics, eCell, mCell and VirtualCell.

Disposition

The course is divided into two parts.The first one provides an introduction to the various tools, which is done in the form of seminars. The remaining part consists of project work with at least two chosen tools to illustrate a current issue in cell physics.

Course literature

Utdelat material samt online material för de olika verktygen

Examination

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) projectwork, 6,0 hp, grading scale : P/F

Other requirements for final grade

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.