SK2511 Cellular Biophysics II 6.0 credits

Den biologiska cellens fysik II

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 SK2511 valid from Autumn 2008

Grading scale

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

Education cycle

Second cycle

Main field of study

Biotechnology,Engineering Physics,Physics

Specific prerequisites

Mathematics corresponding to F2. Cellular Biophysics (5A1584) or equivalent.

Language of instruction

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

Intended learning outcomes

The course intends to provide

- Knowledge of the fundamental physical principles for the electrical properties of living cells.
- Mathematical models describing membrane and action potentials
- An introduction to electrophysiological measurement techniques

Course contents

Lectures:
The cellular electrical potential, mechanisms generating electrical potential, action potentials, models, the cable model, the Hodgkin-huxley model, neuronal cells, voltage gated ion channels.

Laboratory exercise:
Electrophysiological measurement of membrane potential.

Course literature

Weiss TF, “Cellular Biophysics, vol 2:Electrical properties”, MIT Press 1997

Examination

- INL1 - Assignments, 1.5 credits, grading scale: P, F
- LAB1 - Laboratory Work, 1.5 credits, grading scale: P, F
- TEN1 - Examination, 3.0 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

Hand-in assignments (INL1; 1,5 cr).
Laboratory exercise (LAB1; 1,5cr).
Written examination (TEN1; 3 cr)

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.