

Biochemistry and Cell Biology

Programme course

6 credits

Biokemi och cellbiologi

TBME03

Valid from: 2017 Spring semester

Determined by

Board of Studies for Electrical Engineering,
Physics and Mathematics

Date determined

2017-01-25

Main field of study

Biomedical Engineering

Course level

First cycle

Advancement level

G2X

Course offered for

- Biomedical Engineering, Master's Programme
- Engineering Electronics
- Computer Science and Engineering, M Sc in Engineering
- Information Technology, M Sc in Engineering
- Applied Physics and Electrical Engineering - International, M Sc in Engineering
- Applied Physics and Electrical Engineering, M Sc in Engineering
- Biomedical Engineering, M Sc in Engineering

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

Basic knowledge in biology and chemistry

Intended learning outcomes

The course should provide a possibility for the student to acquire knowledge in biochemistry and cell biology from an engineering perspective. After passing the course the student should be able to:

- describe the structure and function of the eukaryotic cell.

- describe the interaction and communication between cells and their environment.
- give examples of how cells are affected by contact with foreign non-biological material.
- summarize and explain how cells are able to regulate their gene expression and thereby their functions.
- explain how damaged and sick cells are taken care of by other cells.
- describe and apply the most common techniques used to study and seek information about cell function.

Course content

The cell building blocks, metabolism, forming new products, gene expression, cell-division, systems for repairing cells, cell death and its impact on surrounding tissue, cell motility and adhesion, interaction between cells and foreign material. The topic of cell signalling how it relates to cell functions will be in focus in the course.

Teaching and working methods

The education framework includes lectures, seminars, laboratory work and scientific work.

Examination

TEN1	Written examination	U, 3, 4, 5	4 credits
UPG1	Handing in task	U, G	1 credits
LAB1	Laboratory work	U, G	1 credits

Grades

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

Department

Institutionen för medicinsk teknik

Director of Studies or equivalent

Linda Rattfält

Examiner

Padraig D'Arcy

Course website and other links

<https://www.imt.liu.se/en/edu/courses/TBME03/>

Education components

Preliminary scheduled hours: 48 h

Recommended self-study hours: 112 h

Course literature

Additional literature

Books

Alberts et al, (2009) *Essential Cell Biology* 3 Edition Academic Internet Publishers
ISBN: ISBN 9780815341307

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.