

# **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

G<sub>2</sub>F

## 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**

LAB1 UPG1	Laboratory work	1 credits	U, G
	Handing in task	1 credits	U, G
TEN <sub>1</sub>	Written examination	4 credits	U, 3, 4, 5

#### 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.

