

MOBA01, Biology: Cell Biology, 15 credits

Biologi: Cellbiologi, 15 högskolepoäng

First Cycle / Grundnivå

Details of approval

The syllabus was approved by on 2007-03-01 and was last revised on 2013-02-06 by Study programmes board, Faculty of Science. The revised syllabus applies from 2013-02-06, autumn semester 2013.

General Information

The course is a compulsory first-cycle course for a degree of Bachelor of Science in Biology and Molecular Biology.

Language of instruction: Swedish

Main field of studies

Biology

Molecular Biology

Depth of study relative to the degree requirements

G1N, First cycle, has only upper-secondary level entry requirements

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Learning outcomes

On completion of the course the student shall be able to:

Knowledge and understanding

- explain differences and similarities in the morphology and internal structure of different cell types
- explain photosynthesis and respiration
- describe bacterial cultivation, and analyses of bacterial growth and density
- describe the structure and replication of DNA
- explain transcription and protein synthesis
- account for the application of microbiology in food technology and medicine

Competence and skills

- account for the basic routines when using general laboratory equipment in sterilisation techniques, cultivating bacteria, making bacterial density measurements, performing microscopical studies of different cell types, and when using computers in the laboratory
- interpret microscopical images of different cell parts
- use databases to gather information
- search information on the internet
- communicate orally and in writing

Judgement and approach

- cooperate by working in groups

Course content

The structure and composition of the cell in bacteria, plants and animals. The structure and function of proteins, nucleic acids and membranes. The mechanisms of energy transformations. The importance and regulation of the water content in cells. The evolution, systematics, growth and nutritional requirements of bacteria. Sterilisation and disinfection. The effect of antibiotics on bacterial growth. Applications of microbiology in medicine and food technology. The structure and propagation of viruses. Cell reproduction; mitosis, cell cycle and cancer growth. Cell differentiation and specialised animal cells. DNA structure and DNA replication. Transcription of DNA and protein synthesis.

Course design

The teaching consists of lectures, teacher-led individual studies, laboratory sessions and group work. Participation in laboratory sessions and group work, and thereby other integrated teaching, is compulsory.

Assessment

Examination takes place as several written and/or computer-based examinations during the course. For students who have not passed the regular examinations, additional examinations in close connection to these are offered.

Subcourses that are part of this course can be found in an appendix at the end of this document.

Grades

Marking scale: Fail, Pass, Pass with distinction.

To pass the entire course, approved examinations, approved laboratory reports, as well as participation in all compulsory parts of the course, are required.

The final grade is decided through the combined results of the examinations that are

included in the course.

Entry requirements

General and courses corresponding to the following Swedish Upper Secondary School Programs: Biology 2, Chemistry 2, Mathematics 4, Physics 1b/1a1+1a2.

Further information

The course may not be included in a degree together with MOB101 Cell Biology 15 credits.

Subcourses in MOBA01, Biology: Cell Biology

Applies from H14

- 1301 Exam 1, 6,0 hp
Grading scale: Fail, Pass, Pass with distinction
- 1302 Exam 2, 7,5 hp
Grading scale: Fail, Pass, Pass with distinction
- 1303 Laboratory Work, 1,5 hp
Grading scale: Fail, Pass

Applies from V13

- 0702 Basic Microbiology, 4,5 hp
Grading scale: Fail, Pass, Pass with distinction
- 0703 Cell Structure and Function, 5,5 hp
Grading scale: Fail, Pass, Pass with distinction
- 0704 Replication, Transcription and Translation, 3,5 hp
Grading scale: Fail, Pass, Pass with distinction
- 0705 Laboratory Work, 1,5 hp
Grading scale: Fail, Pass