Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

Syllabus

BI1391.1 Cellbiology, genetics and microbiology, 15.0 credits

Molekylär cellbiologi och mikrobiologi

The course is given Animal Science and Sustainability (BSc)

Version 1 in Slukurs. Corresponds to version 1 in Ladok

Syllabus approved

12 November 2020

The version applies to students admitted from spring 2022

The version is not a module version

Subjects

Biology

Education cycle

First cycle

Modules

Title	Code	Credits
Cell biology	0102	5.0
Genetics	0103	2.0
Bacteriology	0104	2.0
Immunology	0105	2.0
Parasitology	0106	2.0
Virology	0107	2.0

Advanced study in the main field

First cycle, entry requirements only from upper secondary school (G1N)

Grading scale

5:Pass with Distinction, 4:Pass with Credit, 3:Pass, U:Fail
The requirements for attaining different grades are described in the course assessment criteria which are contained in a supplement to the course syllabus. Current information on assessment criteria shall be made available at the start of the course.

Language

Swedish

Prior knowledge

- Biology 2, Biology B
- Chemistry 2, Chemistry B

Objectives

The course aims to provide basic knowledge and laboratory training in cell biology, microbiology, immunology and genetics. The course also aims to integrate the various subject fields of cell biology, microbiology, immunology and genetics, and to provide an overall understanding of systems biology.

After completing the course, the student should be able to:
- describe the structure of a cell, interactions between cells and extracellular matrix, transport of molecules within and across cell membranes,
- describe the processes of cell proliferation and signaling, and stem cells and mechanisms that control the onset of cancer,
- compare the presence of, and systematics, morphology and properties of different types of microorganisms and parasites,
- describe the importance of microorganisms and parasites for the occurrence of disease in animals,
- use and give an account of basic microbiological and parasitological laboratory techniques,
- describe the general structure of the immune system and its significance in microbial infections and against parasites,
- describe basic genetics, genetic diversity, organization of the genome and regulation of gene expression.

Content

The course aims to illustrate basic processes of cell biology including regulation of gene expression, membrane structure, membrane transport, intracellular transport, cell signaling, cytoskeleton, cell cycle, extracellular matrix, cell-cell / cell-matrix contacts, cancer and stem cells.

Furthermore, the course provides basic knowledge about the structure and characteristics of microorganisms and parasites as well as principles for the systematics of microorganisms and parasites. It provides an overall understanding of how infection of various microorganisms and parasites occurs, the mechanisms of the immune system in mammals, the evasion of the immune system of microorganisms/parasites, and principles for diagnosis, prevention and control of microorganisms and parasites. The course provides an overview of the presence of disease-causing microorganisms and parasites in farm animals and pets. In the field of genetics, the course provides knowledge in Mendelian inheritance, genetic diversity, genome organization, gene regulation, gene families and central genetic and molecular genetic methods.

The course includes lectures, seminars, group work and laboratory sessions. Compulsory components occur in e.g., laboratory sessions, group work and seminars.

In this course, the following general skills are practiced: written and oral communication, problem-solving and critical thinking.

Formats and requirements for examination

Passed written examination and passed participation in mandatory parts.

- If the student fails a test, the examiner may give the student a supplementary assignment, provided this is possible and there is reason to do so.
- If the student has been granted special educational support because of a disability, the examiner has the right to offer the student an adapted test, or provide an alternative assessment.
- If changes are made to this course syllabus, or if the course is closed, SLU shall decide on transitional rules for examination of students admitted under this syllabus but who have not yet passed the course.
- For the examination of a degree project (independent project), the examiner may also allow the student to add supplemental information after the deadline. For more information on this, please refer to the regulations for education at Bachelor's and Master's level.

Additional information

- Some parts of the course may be held in English.
- The course requires basic knowledge in chemistry, biochemistry and cellbiology.

- The right to take part in teaching and/or supervision only applies to the course date to which the student has been admitted and registered on.
- If there are special reasons, the student may take part in course components that require compulsory attendance at a later date. For more information on this, please refer to the regulations for education at Bachelor's and Master's level.

Responsible department

Department of Biomedical Sciences and Veterinary Public Health
Cooperating departments:
Department of Animal Breeding and Genetics
Department of Anatomy, Physiology and Biochemistry

Supplementary Information

Finalized by: Programnämnden för utbildning inom veterinärmedicin och husdjur (PN - VH)
Biology Area: Microbiology
Replacement course: Ersätter: HV0133