Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

Syllabus

BI1032.2 Biochemistry I, 10.0 credits

Biokemi I

The course is given Agriculture Programme - Food (270 hec), Biology with specialisation in Biotechnology - Bachelor's Programme, Food & Health - Bachelor´s Programme and Food Science - Bachelor´s Programme

Version 2 in Slukurs. Corresponds to version 6 in Ladok

Syllabus approved

28 November 2013

The version applies to students admitted from autumn 2014

The version is not a module version

Subjects

Biology/Chemistry

Education cycle

First cycle

Modules

Title	Code	Credits
Single module	0201	10.0

Advanced study in the main field

First cycle, has less than 60 credits in first-cycle course/s as entry requirements (G1F)

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

Knowledge equivalent to 10 credits in General and Organic Chemistry.

Objectives

After completing the course the student should be able to:
- Describe and apply basic processes and terminology needed to understand the chemical aspects of biology
- Describe the basic processes associated with the flow of genetic information in living organisms
- Describe in general terms the structure, function and metabolism of different biomolecules in the living cell
- Review and discuss intermediate metabolism and energetics of the cell
- Perform basic laboratory experiments in biochemistry
- Write a laboratory report based on given instructions

Content

The course provides basic knowledge and laboratory skills in biochemistry. The students´ ability in written and oral presentations will be practised.
The lectures, seminars and practical parts will consider:
- The organisation of living cells, differences between prokaryotes and eukaryotes as well as plants and animals
- Basic principles of biochemistry, thermodynamics, molecular interactions in water
- Structure and function of nucleic acids, the genetic flow, DNA-replication, RNA- and protein synthesis, gene technology, mechanisms of evolution, introduction to bioinformatics
- Proteins: composition, structure, function, synthesis, degradation and techniques

for purification and analysis
- Enzymes: function, catalysis, kinetics and regulation of activities
- Structure function and metabolism of carbohydrates, polysaccharides, lipids and fats
- Biological membranes, transport mechanisms and communication between cells
- Energy metabolism: glycolysis, citric acid cycle, oxidative phosphorylation, photosynthesis, anaerobic fermentation, pentose phosphate pathway, glycogen metabolism, degradation of fats, beta-oxidation and energy yield
- Intermediary metabolism, nitrogen metabolism, regulatory mechanisms

Implementation

Scheduled activities

Lectures

approx. 45 Hours

Laboratory work

approx. 25 Hours

Compulsory

Exercises

approx. 10 Hours

Seminars

approx. 5 Hours

Compulsory

Examination and evaluation

approx. 5 Hours

Group activities, not scheduled

Group assignments

approx. 30 Hours

Individual studies, not scheduled

Written exercises

approx. 20 Hours

Literature studies

approx. 130 Hours

Total

approx. 270 Hours

Formats and requirements for examination

Approved written examination at the end of the course. Completed and approved compulsory 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

- 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 Molecular Sciences

Supplementary Information

Finalized by: Utbildningsutskottet för livsmedel och bioteknologi
Biology Area: Molecular Biology
Replacement course: BI0968