UNIVERSITY OF BORÅS

Biotechnology
Bioteknik
15 credits

Ladok Code: 41BT15
Version: 1.0
Established by: Education Committee 2014-11-21
Valid from: Spring 2016

Education Cycle: First cycle
Main Field of Study (Progressive Specialisation): Biotechnology (G1F)
Disciplinary Domain: Technology
Prerequisites: Meets the requirements for admission to the Degree of Bachelor of Science in Engineering (or equivalent). In addition, the student must have passed the courses Basic Lab Technique with Measurement Analysis 7.5 credits and General and Inorganic Chemistry 1, 7.5 credits.
Subject Area: Biotechnology
Grading Scale: U, 3, 4 or 5

Content

- Biomolecules
- The external and internal structures and their functions of prokaryotic and eukaryotic micro-organisms
- The energy production, metabolism and genetics of prokaryotic and eukaryotic micro-organisms
- Microbial growth
- Biotechnology applications

Learning Outcomes

After completing this course, students must be able to:
1 Knowledge and understanding
1.1 Describe the structure and function of proteins, carbohydrates, lipids and nucleic acids,
1.2 Describe the basics of enzyme reactions,
1.3 Outline the main elements in the biosynthesis of DNA, RNA and protein,
1.4 Describe the external and internal structures of micro-organisms,
1.5 Describe the structure of membranes and transport via these,
1.6 Give an account of the energy metabolism and metabolism of different micro-organisms,
1.7 Explain the basic principles of microbial genetics of interest to biotechnology,
2. Skills and abilities
2.1 Apply basic biochemical, microbiological and molecular biology techniques,
2.2 Plan and carry out a major laboratory biotechnology project,
3. Judgement and approach
3.1 Critically assess and evaluate the results from laboratory experiments and projects.

Forms of Teaching

Teaching will consist of lectures, laboratory experiments and projects.

The language of instruction is English. However, instruction in Swedish may occur.

Forms of Examination

The course will be examined through the following examination elements:

Exam

Learning outcomes:
Credits: 8
Gradingscale: U, 3, 4 or 5

Laboration
Learning outcomes:
Credits: 3.5
Gradingscale: Fail (U) or Pass (G)

Laboration report
Learning outcomes:
Credits: 0.5
Gradingscale: Fail (U) or Pass (G)

Project
Learning outcomes:
Credits: 3
Gradingscale: Fail (U) or Pass (G)

The module exam determines the final grade which is issued when all components of the course are approved.

Student rights and obligations at examination are in accordance with guidelines and rules for
the University of Borås.

Literature and Other Teaching Materials

Madigan M, Matinko J M, Bender K S, Buckley D H, Stahl D H: *Brock Biology of Microorganisms* 14:e edition, Prentice Hall
Supplementary copied material.

Student Influence and Evaluation

The Head of Academy and course coordinator are responsible for ensuring that students are invited systematically and regularly to put forward their views on the course. The results of the evaluations will be reported back to the students and will form the basis for the future structure of the course.

Miscellaneous