



HÖGSKOLAN I GÄVLE

Applied Environmental Microbiology 15 cr

Tillämpad miljömikrobiologi 15 hp

Set by Faculty of Engineering and Sustainable Development

Version

Set at

Valid from

2/3/20

VT2020

Level	A1N
Education level	Second cycle
Course identifier	BIA008
Credits	15 cr
Main field of study	Biology
Subject group	Biology
Disciplinary domain	Natural sciences 100.0 %

Learning outcomes

Upon completion of the course the student will be able to

1. give an account of the theoretical framework for application of microbiological techniques and chemical analytical methods
2. demonstrate the ability to isolate microorganisms from the environment and skills in sterile technique, cell cultivation, cell counting and microscopy
3. demonstrate skills in molecular biological methods for determination of species of microorganisms
4. demonstrate skills in applying software for microbial DNA sequence and phylogenetic analysis
5. apply microbiological techniques for identification and quantification, and be able to measure and analyze microbial metabolism and growth
6. demonstrate skills in selection and application of analytical methods in Chemistry, including the ability to interpret experimental results to investigate microbial biodegradation processes
7. design, execute and document a microbiological experiment, also entailing the analysis and critical evaluation of experimental results
8. communicate microbiological theory and experimental results in a scientific context.

Course content

Application of molecular biological and classical methods of identification for

microorganisms
 Generation and assessment of phylogenetic trees
 Identification and classification of microorganisms
 Biological and chemical analyses during microbial cultivation
 Experimental design in microbiological systems, testing of hypotheses and applying of the scientific method.

Teaching Lectures, laboratory sessions and seminars. Participation in laboratory sessions and seminars are compulsory.

Prerequisites 90 credits of Biology, of which 7.5 credits is Cellular and Molecular Biology and 7.5 credits is Microbiology, and 15 credits in Chemistry, of which 7,5 credits is Biochemistry, or equivalent

Examination Written examination, written laboratory reports and seminars

Module 0010 Written examination 5 credits examines learning outcomes 1, 6-8, grades A-F
 Module 0020 Laboratory work 7,5 credits examines learning outcomes 2-7, grades Pass, Fail
 Module 0030 Seminars 2,5 credits examines learning outcome 8, grades Pass, Fail

Grade A, B, C, D, E, Fx, F

Other regulations Degree Criteria for final grade will be given by course responsible or examiner latest at the beginning of the course.

Sustainable environment The majority of the course content deals with sustainable development..

Module

0010	Written Examination	5 cr	Grade: AF
0020	Laboratory work	7.5 cr	Grade: UG
0030	Seminars	2.5 cr	Grade: UG