Course: Molecular Microbiology — credits: 5

Course code	BOVH24RMOLMICRO
Name	Molecular Microbiology
Study year	2025-2026
ECTS credits	5
Language	Dutch, with parts in English
Coordinator	J. de Keyzer

Modes of delivery	Lecture Practical / Training Tutorial
Assessments	Moleculaire Microbiologie & Virologie Theorie - Computer, organised by STAD examinations Practicum - Other assessment

Learning outcomes

- You explain how bacteria can regulate the expression and activity of enzymes at different levels (DNA, RNA, protein);
- You describe the properties of various viruses and explain how they can maintain and replicate themselves in prokaryotic or eukaryotic host cells, according to current scientific insights;
- You use bioinformatics software to analyze DNA sequences, design primers, and perform in silico simulations of cloning experiments;
- You conduct a molecular cloning experiment in Escherichia coli, compare the results with in silico simulations of the experiment, and report this in writing in a logbook according to specified guidelines;
- You explore potential minor/internship placements by attending the Poster Presentation of the ILST interns.

Content

This module provides a molecular microbiological foundation for research students. The theoretical part of the module extensively covers the regulation of gene expression in bacteria and the structure and functioning of viruses. The acquired knowledge is assessed through written exams. The practical component consists of a computer lab session combined with a laboratory session. During the computer lab session, you use bioinformatics software to analyze in silico DNA sequences, design primers, and simulate cloning experiments. During the laboratory session, you conduct a cloning experiment in Escherichia coli. You process and discuss the results in a digital logbook.

Included in programme(s)

Major Biology and Medical Research

School(s)

Institute for Life Science & Technology

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