Hanze

Course: The Central Dogma — credits: 5

Course code	BOVP25RCTRDOGMA
Name	The Central Dogma
Study year	2025-2026
ECTS credits	5
Language	Dutch, with parts in English
Coordinator	W.A. Pool
Modes of delivery	Lecture Teaching method 1 Tutorial
Assessments	Theory- Het Centrale Dogma - Computer, organised by STAD examinations Tutor - Other assessment

Learning outcomes

This module has the following learning outcomes within Molecular Biology:

You explain the replication, transcription, translation , mutation and repair processes of DNA and predict their outcomes;

You explain the principle of genetic regulation in both bacteria and eukaryotes, and speculate on gene expression levels using examples;

You explain the organisation of both the bacterial and eukaryotic genome, and explain the link between the genome and evolutionary processes;

You describe nucleic acids, amino acids, oligopeptides and proteins in terms of properties, chemical composition, chemical bonding and structure, and you draw, recognise and name them;

You explain the principle of various molecular techniques (such as DNA isolation, PCR, DNA restriction, DNA and protein gel electrophoresis, blotting and spectroscopic techniques) and describe what the various steps in a procedure are for.

DAS competencies

Competency	Level (I-IV)
Research	I
Experimentation	I
Development	
Management	I
Advise	
Instruction	I
Leadership	
Self-management	I

Content

This module covers the basics of molecular biology which focuses on the central dogma (information transfer from DNA, to RNA and PROTEIN). These macromolecules are covered in detail chemically and biologically. This includes the following aspects: DNA as an information carrier, DNA replication, transcription and translation. This theory is expanded to include various related aspects, such as the organization of both the bacterial and eukaryotic genome, gene regulation, DNA mutation and repair. In addition, the principles of various molecular techniques are covered so that the student understands the background of the techniques during lab practical.

Included in programme(s)

Major Biology and Medical Research

School(s)

Institute for Life Science & Technology

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