Hanze

Course: Genes and Health — credits: 5

Course code	BFVP22GENEN
Name	Genes and Health
Study year	2025-2026
ECTS credits	5
Language	Dutch, with parts in English
Coordinator	A.M. Poortinga
Modes of delivery	Assignment Practical / Training Project-based learning
Assessments	Between Genes and Healing - Other assessment

Learning outcomes

- You work in a team on a project in which you identify, define, prioritise, divide, implement and evaluate tasks.
- Together with your working group, you present the results of a case studied by you to your fellow students and lecturers, and you actively participate in discussions following the presentations
- You know the structure of different macromolecules (sugars, proteins, DNA/RNA and lipids) and you explain their function in a cell/organism
- You can describe the different cellular compartments of a cell and relate their role to their structure
- You understand the role of enzymes in the main metabolic pathways in a cell
- You can explain a cell biological process in detail, including what goes wrong in disease

Content

You probably don't think about it every day, but at the molecular level, you are constantly falling apart. Fortunately, the damage is repaired as quickly as it occurs by all kinds of biochemical processes. But if one or more of these so-called metabolic processes become disrupted, not everything is repaired fully or properly anymore. In other words: you can get sick. The other way round is also possible. You can cure a disease (a disturbed biochemical process) with the right drugs (by intervening in that disturbed process). Or you can, for instance, adjust the bacterial and fungal growth in a young cheese so that it does not simply spoil, but turns into a delicious blue cheese.

Because bioinformaticians are often involved in this kind of research, in this module you will learn how the most important biochemical processes take place and what role they play within an organism.

Whether you have mastered the material enough to apply it in practice is assessed on the basis of a study of a biological process that you carry out in a group. You will look in detail at a cell biological process, what the consequences of a disruption are on a cellular/biochemical level, and also how and why this disruption affects the entire organism. You will present your study to the rest of the class and lecturers.
You carry out your study largely during the working lectures in which lecturers are available to ask any questions and help you carry out the study.
To do your studies, you need to know a thing or two about cellular and molecular biology. This material is offered in the form of working lectures, where exercises are also offered and discussed in groups. Although the lecturers will help you on your way during these contact moments, you will spend most of the time familiarising yourself with the material based on the literature provided. Of course, you can always ask your lecturers questions if something is unclear, and by asking questions, lecturers will check your understanding of the material.

Included in programme(s)

Bio-Informatics

School(s)

Institute for Life Science & Technology

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