Vak: Genomics Project

credits: 5

Vakcode	BFVH24GENOMICS
Naam	Genomics Project
Studiejaar	2026-2027
ECTS credits	5
Taal	Engels
Coördinator	M. Kempenaar
Werkvormen	Projectonderwijs
Toetsen	Genomics Project - Overige toetsing

Leeruitkomsten

This module has the following learning outcomes:

1. You know the different types of possible variants occurring in DNA-sequences and can detect, filter and annotate these using the proper tools and techniques.
1. You have a good overview of the quality requirements of NGS data, depending on both the NGS technique used as well as the purpose of the analysis. Furthermore, you can apply the tools to gain insight into and improve this quality.
1. You keep an RMarkdown lab journal that documents all steps taken and records results so that the analysis is reproducible.
1. You develop a simple Galaxy workflow for finding and annotating variants in NGS data

Since this is not a fixed part of any curriculum there are no DAS competences defined for the course.

Inhoud

In this module you will work in groups to determine variants from a DNA sequence dataset of a given condition that may contribute to the development of this condition. We do this by processing raw sequencing data to eventually annotate found variants for their relation to a certain condition. Most aspects of this analysis will be performed in the workflow manager Galaxy with several extra steps that require programming in R. Every step taken will be documented in an RMarkdown lab journal, starting with quality control of the raw NGS reads, mapping these to a reference genome, reporting on the achieved coverage, finding and annotating variants and finally researching the found variants on their relation to the condition.

Opgenomen in opleiding(en)

Minor Data Science for the Life Sciences

School(s)

Engineering, Life Sciences & ICT

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