

Vak: Omics Project: Integromics

credits: 10

Vakcode	BFVM22OMICSINT
Naam	Omics Project: Integromics
Studiejaar	2022-2023
ECTS credits	10
Taal	Engels
Coördinator	M. Herber

Werkvormen	Hoorcollege
Toetsen	TOETS-01 - Overige toetsing

Leeruitkomsten

The student can:

- Formulate a clear, verifiable hypothesis on the basis of a client's research question Identify and understand possible Omics techniques necessary for answering a research question and hypothesis
- Evaluate datasets for utility in answering a client's hypothesis
- Pre-process datasets in order to be able to do inter-dataset analyse
- Apply and validate statistical techniques across datasets
- Apply and validate machine learning techniques in pre-processing data and meta-analysis across datasets
- Identify business and economics factors applicable to the research question and integrate them with the final conclusion (where applicable)
- Present findings in a clear and scientific manner to the target audience (client, researchers, peers)

Inhoud

This course introduces the student to the integration of current "omics" techniques in order to answer research questions that cannot be answered using only one type of analysis. "Omics" techniques are both quantitative as well as high-throughput, leading to large datasets of information amenable to analysis by advanced statistics and machine learning. First, the student is introduced to state-of-the-art lab techniques in the areas of (meta)genomics, transcriptomics, metabolomics, proteomics, epigenomics, foodomics, imaging, epidemiology etc. The student will choose a research project provided by the connected research centres like UMCG, AVEBE and the innovation workplace Digital Society Hub for which datasets of multiple types are available and formulate and test a hypothesis using appropriate quantitative methods (statistics/Machine Learning). A crucial aspect is communicating the methods and the findings to peers and clients.

Context learning line

This project builds upon the technologies mastered in the first semester. Where appropriate, visualisation and web techniques from semester I are used to report and clarify the findings.

Opgenomen in opleiding(en)

Master Data Sciences for the Life Science

School(s)

Instituut voor Life Science & Technology

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