Hanze

Course: Java Applications — credits: 10

Course code	BFVH24JAVA
Name	Java Applications
Study year	2025-2026
ECTS credits	10
Language	Dutch, with parts in English
Coordinator	M.A. Noback
Modes of delivery	Project-based learning
Assessments	Java Programming - Computer, organised by School Software Development - Other assessment

Learning outcomes

This module has the following learning outcomes:

You develop Java software for the bioinformatics domain, using the standards of this language (syntax elements, naming, code style, Javadoc, latest APIs, etc)

You apply object-oriented development principles such as inheritance, encapsulation, abstraction and polymorphism correctly at novice level and explain them to fellow students. In doing so, you use UML to design and communicate class diagrams.

You develop a (JUnit) test suite for relevant methods from your production code, loosely following Test-Driven Development (TDD) principles.

You develop robust bioinformatics Linux-style command-line applications, correctly using command-line argument parsing, error handling and logging.

You design demonstrably efficient algorithms and data structures to solve computational problems. You use profiler tooling, among other things.

Content

In this module, you will design and build Java applications using libraries and frameworks from the Java ecosystem. These applications will be command-line applications that accept and process command-line arguments according to Unix standards.

We will use the principles of Object Oriented Design and Test-Driven Development (TDD) in this module.

In small excursions, we will be introduced to Extreme Programming and division of roles Test Developer and Production Developer, and Designer versus Developer.

This module assumes you can already program well, and have a basic idea of what object-oriented programming entails, via Python or otherwise. Sound knowledge of git and version control is also assumed. The modules from the bioinformatics curriculum 1.1.3, 1.3.2, and 2.2.1 provide good preparation for this.

The module has two parts; a 3 ECTS part, assessed via a computer test in exam mode (i.e. no internet access) and a 7 ECTS part which is assessed with a project portfolio.

Included in programme(s)

Bio-Informatics

School(s)

Institute for Life Science & Technology

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