

Data Visualization (C004041)

Course size (nominal values; actual values may depend on programme)

Credits 3.0 Study time 90 h Contact hrs 30.0 h

Course offerings and teaching methods in academic year 2020-2021

A (semester 2) Dutch lecture 30.0 h

Lecturers in academic year 2020-2021

Mesuere, Bart WE02 lecturer-in-charge

Offered in the following programmes in 2020-2021

	crdts	offering
Master of Science in Teaching in Science and Technology (main subject Computer Science)	3	A
Master of Science in Computer Science	3	A

Teaching languages

Dutch

Keywords

data, data visualization, data analysis

Position of the course

Contents

- Why data visualization
- Historical perspective
- Principles of data visualization
- Data and data types
- The visual encoding of data
- Web fundamentals: introduction to html, svg, css, javascript
- interactive data visualisations using d3.js
- Visualization design
- Evaluation of visualization methods
- Applications of visualization

Initial competences

Students are expected to be able to program in a *high-level* programming language such as Java, JavaScript, Python, ...

Final competences

- 1 Use standard APIs and tools to create visual displays of data, including graphs, charts, tables, and histograms.
- 2 Have familiarity with several approaches to using a computer as a means for interacting with and processing data.
- 3 Extract useful information from a dataset.
- 4 Analyze and select visualization techniques for specific problems.
- 5 Describe issues related to scaling data analysis from small to large data sets.
- 6 Describe the tradeoffs of visualization algorithms in terms of accuracy and performance.
- 7 Propose a suitable visualization design for a particular combination of data characteristics and application tasks.
- 8 Analyze the effectiveness of a given visualization for a particular task.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

Access to this course unit via an exam contract is unrestricted

Teaching methods

Lecture

Extra information on the teaching methods

Interactive lectures consisting of theory, analyzing and discussing examples, and discussing the case studies made by the students as home work.

Learning materials and price

Teaching materials will be supplied to the students using the electronic teaching environment Ufora.

References

Optional books:

- Data Visualisation - A handbook for data driven design (Andy Kirk)
- Interactive Data Visualization for the Web (Scott Murray)

Course content-related study coaching

Evaluation methods

continuous assessment

Examination methods in case of periodic evaluation during the first examination period

Examination methods in case of periodic evaluation during the second examination period

Examination methods in case of permanent evaluation

Portfolio, assignment, report

Possibilities of retake in case of permanent evaluation

not applicable

Extra information on the examination methods

Students will be evaluated by reporting about a number of case studies they analyzed as home work assignment. Additionally, they will work on a project in team.

Calculation of the examination mark

100% permanent evaluation

Facilities for Working Students

Mogelijkheid tot vrijstelling van aanwezigheid met vervangende opdracht na overleg met verantwoordelijke lesgever