



Faculty of Health, Science and Technology  
Computer Science

# Syllabus

## Quality in Data driven Systems

<b>Course Code:</b>	DVAE22
<b>Course Title:</b>	Quality in Data driven Systems <i>Kvalitet i datadrivna system</i>
<b>Credits:</b>	7.5
<b>Degree Level:</b>	Master's level
<b>Progressive Specialisation:</b>	Second cycle, has second-cycle course/s as entry requirements (A1F)

**Major Field of Study:**  
DVA (Computer Science)

### Course Approval

The syllabus was approved by the Faculty of Health, Science and Technology 2023-02-23, and is valid from the Autumn semester 2023 at Karlstad University.

### Prerequisites

Software architectures of distributed applications (5 ECTS credits), plus upper secondary level English 6, or equivalent

### Learning Outcomes

Upon completion of the course, students should be able to:

- explain the basic concepts of software quality for data-driven systems,
- describe different architectures used to achieve reliability, scalability, and maintainability in computer systems,
- identify data quality in relation to dimensions, attributes, and problems in each step of a data-driven system,
- explain the life cycles of data-intensive systems, from data creation to validation, processing, presentation, storage, and archiving,
- explain the effect of different data analysis objectives in terms of desired format, content,

and quality of the data, as well as the applicability of various AI technologies,

- outline the trajectory of data through the life cycle of a production system, and
- put into operation data quality solutions in production settings.

### **Content**

The aim of the course is to cover quality aspects of modern data-driven systems from a software perspective. The course provides a comprehensive introduction to software engineering quality, especially the aspects that can be applied to data-driven systems. The course begins with data collection, system design for specific aspects of quality, architecture for data quality control flow, and real-time data verification. Quality control is discussed in the framework of life cycles of data-driven systems and from a software perspective, including data collection, system architecture, data verification, and data storage. Problems in data-driven systems used for production, such as online real-time data verification and implementation of data quality flows, are covered, as are deployment problems for data-driven systems.

### **Reading List**

See separate document.

### **Examination**

Assessment is based on individual hand-in assignments, laboratory work (group assignments) reported in writing, and a written exam.

If students have a decision from Karlstad University entitling them to Targeted Study Support due to a documented disability, the examiner has the right to give such students an adapted examination or to examine them in a different manner.

### **Grades**

One of the grades 5 (Pass with Distinction), 4 (Pass with Some Distinction), 3 (Pass), or U (Fail) is awarded in the examination of the course.

### **Quality Assurance**

Follow-up relating to learning conditions and goal-fulfilment takes place both during and upon completion of the course in order to ensure continuous improvement. Course evaluation is partly based on student views and experiences obtained in accordance with current regulations and partly on other data and documentation. Students will be informed of the result of the evaluation and of any measures to be taken.

### **Course Certificate**

A course certificate will be provided upon request.

### **Additional information**

The local regulations for studies at the Bachelor and Master levels at Karlstad University stipulate the obligations and rights of students and staff.