



Faculty of Health, Science and Technology  
Mathematics

# Syllabus

## Digital Tools in Mathematics Education

**Course Code:** MAAK40

**Course Title:** Digital Tools in Mathematics Education  
*Digitala verktyg i matematikundervisningen*

**Credits:** 7.5

**Degree Level:** Master's level

**Progressive Specialisation:** Second cycle, has only first-cycle course/s as entry requirements (A1N)

**Major Field of Study:**  
MAA (Mathematics)

### Course Approval

The syllabus was approved by the Faculty of Health, Science and Technology 2018-08-28, and is valid from the Spring semester 2019 at Karlstad University.

### Prerequisites

Teaching degree including at least 30 ECTS credits in Mathematics. Upper secondary school level Swedish 3/B or Swedish as a second language 3/B and English 6/A, or equivalent.

### Learning Outcomes

The aim of the course is that students develop skills in planning and designing mathematics teaching with digital tools in secondary education.

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

1. plan, conduct, evaluate and revise teaching sequences with digital tools in mathematics,
2. design teaching material for planning teaching sequences with instructions for teachers,
3. reflect on their own teaching practice in relation to current research on using digital tools in mathematics teaching.

### Content

Based on current research, the course introduces and discusses various types of digital tool such as dynamic mathematics software, digital response systems and simulation tools for modelling dynamic systems. A central part of the course is to design, implement and evaluate teaching with digital tools for a pupil-centred approach in conjunction with the tutor and fellow-students, as well as exchanging experiences.

### Reading List

See separate document.

### Examination

Assessment is based on:

Learning outcomes 1 and 2: written group report, a first version of which is presented, defended and discussed in seminar.

Learning outcome 3: individual report, a first version of which is presented, defended and discussed in seminar.

### **Grades**

One of the grades Distinction (VG), Pass (G), or Fail (U) 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**

Students are required to have access to a class of students in secondary school or adult education to meet the requirement of reflecting on their own teaching practice.

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