



## Course syllabus

Faculty of Technology  
Department of Computer Science

4DV501 Vetenskapliga metoder inom datavetenskap, 7,5  
högskolepoäng

Scientific Methods in Computer Science, 7.5 credits

**Main field of study**

Computer Science

**Subject Group**

Informatics/Computer and Systems Sciences

**Level of classification**

Second Level

**Progression**

A1N

**Date of Ratification**

Approved by Faculty of Technology 2014-10-03  
The course syllabus is valid from autumn semester 2015

**Prerequisites**

90 credits in Computer Science (including a degree project at Bachelor level).

### Objectives

The course aims at giving the student basic knowledge on theory of science and scientific methodology in the field of Computer Science and Software Engineering.

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

- identify, formulate, discuss, and analyse scientific problems and reason about and select relevant and applicable scientific methods
- find relevant information and literature for a given problem
- find relevant information on research ethics and apply it in your research project
- apply methods for quantitative and qualitative data collection and analysis in the fields computer science and software engineering
- analyse, and assess scientific texts.

### Content

The course comprises:

- theory of science and scientific methods in computer science and software engineering
- scientific literature retrieval
- research ethics
- analysis of scientific publications

- how to structure and write scientific texts
- presentation of scientific problem and suitable scientific method in the fields computer science and software engineering.

## Type of Instruction

Teaching consists of lectures and seminars.

## Examination

The course is assessed with the grades A, B, C, D, E, Fx or F.

The grade A constitutes the highest grade on the scale and the remaining grades follow in descending order where the grade E is the lowest grade on the scale that will result in a pass. The grade F means that the student's performance is assessed as fail (i.e. received the grade F).

Assessment of student performance is made through written test and/or oral examinations and/or presentation of mandatory assignments. The assessment method is decided at the start of the course.

Students who do not pass the regular examination will be offered retrials close to the regular examination.

## Course Evaluation

A course evaluation will be carried out and compiled after the course is completed. The compilation will be presented to the current board as well as to the students and filed.

## Credit Overlap

This course cannot be part of a degree in combination with another course in which the content fully or partly correspond to the content of this course: 4DV001 Scientific Methods in Computer Science, 7.5 credits

## Other

Grade criteria for the A–F scale are communicated to the student through a special document. The student is to be informed about the grade criteria for the course by the start of the course at the latest.

## Required Reading and Additional Study Material

### **Required literature**

Alan Chalmers, *What is this thing called science 4ed.* (2013), Open University Press, ISBN 978- 0335262786 (314 pages)

Material from the department 150 pages.

### **Additional literature**

Ronald N. Giere, John Bickle, Robert Mauldin, *Understanding Scientific Reasoning*, Cengage Learning; 5ed. (2005), ISBN: 978-0155063266, (308 pages)