

Syllabus

DV0001.1 Scientific Computing, 6.0 credits

Beräkningsvetenskap

The course is given as course independent of study programme

Syllabus discontinued 27 November 2008

Version 1 in Slukurs. Corresponds to version 1 in Ladok

Syllabus approved

5 June 2003

The version applies to students admitted from spring 2003 to autumn 2009

The version is not a module version

Subjects

Computer science

Education cycle

First cycle

Modules

Title	Code	Credits
Single module	0101	6.0

Advanced study in the main field

Grading scale

Pass / Failed

The requirements for attaining different grades are described in the course assessment criteria which are contained in a supplement to the course syllabus. Current information on assessment criteria shall be made available at the start of the course.

Language

Swedish

Prior knowledge

3 credits basic algebra, 3 credits calculus of one variable, 3 credits linear algebra, and 3 credits introductory programming, or equivalent.

Objectives

To

- introduce fundamental concepts in scientific computing
- give knowledge and skills in numerical methods for problems in engineering and natural sciences
- give knowledge and skills in using numerical software, interpret results and in writing programs for numerical problems

Content

Introduction to MATLAB, programming and use of MATLAB. Ordinary differential equations: properties and numerical methods for initial and boundary value problems. Linear systems: properties, numerical methods and applications. Numerical methods for non-linear equations and systems of equations. Least squares approximation, interpolation. Numerical integration. Floating point arithmetic, error propagation and stability.

Implementation

The course consists of 40 hours of lectures, seminars and computer exercises. An important part of the accomplishment of the course is the mandatory assignments.

Examination**Requirements for examination**

Written test and assignments.

Passed test and passed assignments.

- If the student fails a test, the examiner may give the student a supplementary assignment, provided this is possible and there is reason to do so.
- If the student has been granted special educational support because of a disability, the examiner has the right to offer the student an adapted test, or provide an alternative assessment.
- If changes are made to this course syllabus, or if the course is closed, SLU shall decide on transitional rules for examination of students admitted under this syllabus but who have not yet passed the course.
- For the examination of a degree project (independent project), the examiner may also allow the student to add supplemental information after the deadline. For more information on this, please refer to the regulations for education at Bachelor's and Master's level.

Additional information

- The right to take part in teaching and/or supervision only applies to the course date to which the student has been admitted and registered on.
- If there are special reasons, the student may take part in course components that require compulsory attendance at a later date. For more information on this, please refer to the regulations for education at Bachelor's and Master's level.

Responsible department

Department of Energy and Technology

Supplementary Information

Finalized by: Programnämnden för biosystemteknikprogrammet