



LT1035 VFU2: Experiments and Informal Learning Environments 11.0 credits

VFU2: experiment och informella lärandemiljöer

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

On 11/04/2019, the Dean of the ITM school has decided to establish this official course syllabus to apply from spring term 2020 (registration number M-2019-0888).

Grading scale

VG, G, U

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

For admission to the course, knowledge is required equivalent to:

Common program courses

- Physics, Chemistry, Energy and the Environment, 15 credits in (MJ1530)

- Mathematics Education and Pre-Service placement for Upper Secondary School, 7.5 credits (UMK212)
- Development and Learning in Science and Technology, 6 credits in (UMK310)
- Learning as Professional Assignments, 8.5 credits in (DIK200)

And

Specialised courses

MAKE - Specialisation in Mathematics and Chemistry

- Chemical Technology, 10 credits in (KE1150)
- Organic Chemistry, 6 credits in (KD1230)

or

MAFY - Specialisation in Mathematics and Physics

- Classical Physics, 7.5 credits in (SK1104)
- Mechanics, 9 credits in (SG1112)
- Experimental Physics, 4 credits in (SK1105)

or

TEMI - Specialisation in Mathematics and Technology with specialisation in energy and environment

- Mechanics, smaller course, 6 credits in (SG1102)
- Ecology and Environmental Effects, 7.5 credits in (MJ1508)

TIKT - Specialisation in Mathematics and Technology with specialisation in information and communication technique

- Programming Technique with Matlab, 8 credits in (DD1312)
- Applied Computer Science and Ethics, 7.5 credits in (DD1325)
- Java programming for Python programmers, 1.5 credits in (DD1380)

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After passing the course, the student should be able to:

- plan, carry out and evaluate a lesson plan that is based on laboratory sessions
- plan, carry out and evaluate a lesson plan that is based on a visit in an informal learning environment
- plan, carry out, report on and evaluate an individual assignment that is based on an empirical study at a museum
- reflect on laboratory sessions and informal learning environments and their opportunities and limitations in teaching,
- be able to describe, assess and give examples of his/her own strengths and areas of development based on experiences and the intended learning outcomes of the course. This assessment of the role of the teacher should be an ongoing process, but it should take place formally before the next placement course.

with aim to be able to use laboratory sessions and informal teaching environments as tools in teaching.

Course contents

The course covers the importance of the experiment in natural sciences, technology and teaching, and how laboratory sessions and informal teaching environments can be used as resources in school and in other contexts.

Individual lesson plans will be planned and prepared, where laboratory work and a visit in an informal learning environment are included as main component. The lesson plans are developed in collaboration with an upper-secondary school, are carried out with pupils, and are evaluated. The student will also plan and carry out an investigative project at a Science centre/museum. The course includes Placement of 9 credits that are assessed in the examination parts VFUA VFUB, VFUC.

Examination

- INLA - Written assignments, 2.0 credits, grading scale: P, F
- VFUA - Development and implementation of laboratory exercise, 3.0 credits, grading scale: VG, G, U
- VFUB - Development and implementation of school visit in an informal learning environment, 3.0 credits, grading scale: VG, G, U
- VFUC - Investigation at a museum, 3.0 credits, grading scale: VG, G, U

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

The course is examined on the following basis:

- Written submissions.
- Oral presentations.
- The observations of teachers and museum staff during development, class visits and examining work.
- The written assessments of the placement supervisor about the student's efforts and knowledge.

The grading criteria of the course are distributed at the beginning of the course.

A student can in exceptional cases in advance be forced to interrupt the placement if

1. There is noticeable risk that the student may injure other individuals or property due to serious lack of skills or particularly inappropriate behaviour
2. The student essentially breaks agreements, contracts or current regulatory frameworks that concern the placement.

The student should in these cases fail the course and is to be informed about the failure in a conversation. The reason that the placement has been interrupted should be recorded.

At failure in placement, the student has the right to carry out another placement period; however, not more than two in all. If special circumstances apply, the student can apply to carry out the placement period once more.

Implementation of the placement course part is offered once a year. For presentations and written submissions, at least two opportunities for examinations should be scheduled a year.

In agreement with the KTH coordinator for disabilities, it is the examiner who decides to adapt an examination for students in possession of a valid medical certificate documenting a disability. The examiner may permit other examination formats at the re-examination of individual students.

Participation in all teaching is compulsory. If there are special reasons, and in consultation with the teacher concerned, the examiner can allow the student exemption from the obligation to participate in some of the compulsory parts.

Other requirements for final grade

Passing the course requires pass on all four assessing components.

Grading takes place according to three-graded scale: Pass with distinction (VG), Pass (G) or Fail (U)

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.