



# Syllabus

for course at first level

**Early Childhood Education focusing on Mathematics and Technology**  
**Förskoledidaktik med inriktning mot matematik och teknik**

**12.0 Higher Education  
Credits**  
**12.0 ECTS credits**

|                          |  |
|--------------------------|--|
| <b>Course code:</b>      | UB314F   |
| <b>Valid from:</b>       | Autumn 2018  |
| <b>Date of approval:</b> | 2018-03-07   |
| <b>Department</b>        | Department of Child and Youth Studies  |
| <b>Main field:</b>       | Early Childhood Education  |
| <b>Specialisation:</b>   | G2F - First cycle, has at least 60 credits in first-cycle course/s as entry requirements |

## Decision

This syllabus was adopted by the head of the Department of Child and Youth Studies on 2018-03-07 in accordance with the current delegation of authority.

## Prerequisites and special admittance requirements

60 higher education credits in teacher education, social sciences, natural sciences and/or the humanities (or equivalent). English B/English 6 (Swedish upper secondary school course) or equivalent.

## Course structure

| Examination code | Name   | Higher Education Credits |
|------------------|--|--------------------------|
| MOM1             | Basic mathematics and technology                         | 1                        |
| MOM2             | Teaching math in the everyday life in preschool          | 2                        |
| MOM3             | Mathematics: learning theories and theories of knowledge | 2                        |
| MOM4             | Mathematics - explorative work and teaching              | 7                        |

## Course content

This course provides an introduction to the field of mathematics. It covers both children's and the students' own relationship to mathematics, as well as mathematical learning theories related to gender. The course considers children's mathematical activities and exploration in their daily lives. In the course, mathematics is treated as a language and studied using practical-aesthetic and multimodal forms of expression. The course will also give an introduction to technology.

The use of pedagogical documentation is extended as a tool to monitor and challenge learning processes, as well as to reflect on the students' own pedagogical actions. The course content is consistently discussed in relation to the task of a preschool teacher and the objectives of the curriculum:

- the importance of play for children's use of mathematics;
- how children create meaning from the study of signs and symbols;
- various practical-aesthetic approaches that stimulate mathematics;
- stimulate and challenge children's interest in technology;
- listening and conversation as didactic tools.

Course module *Basic mathematics and technology in preschool, 1 credits*

The module aims for the student to, through course literature and through their own exploration in workshops, learn how children's play and exploration of signs, symbols, and other expressions carry meaning for mathematical and technical learning.

Course module *Teaching mathematics in the everyday life in preschool, 2 credits*

The module aims for the student to acquire knowledge of practical and aesthetic learning processes; to show knowledge of elementary mathematical learning; and to use practical-aesthetic forms of expression and play in the planning of activities that stimulate mathematical learning.

Course module *Matematics, learning theories and theories of knowledge, 2 credits*

The module aims for the student to be able to describe, compare, and relate different theories to mathematical learning and to relate them to the preschool's policy documents.

Course module *Matematics - explorative work and teaching, 8 credits*

The module aims for the student to acquire knowledge of the basics of the mathematical concepts of space, form, position, and direction; the basic properties of quantities, amounts, orders, and number concepts, as well as the basics of measurement, time and change; to provide knowledge on how to use pedagogical documentation as a tool to monitor mathematical learning processes; how to reflect on one's own relationship to mathematics and to reflect on mathematical learning theories related to gender.

### **Learning outcomes**

In order to pass the course module *Basic mathematics and technology in preschool, 1 credits* students are expected to be able to:

- based on the literature and their own studies in workshops, create an understanding of in what ways children's play and exploration of signs, symbols and other expressions affect mathematical learning.

In order to pass the course module *Teaching mathematics in the everyday life in preschool, 2 credits* students are expected to be able to:

- use practical-aesthetic and multimodal forms of expression;
- show elementary knowledge about preschool children's mathematical learning;
- use practical-aesthetic and multimodal forms of expression, games and ICT in the planning of activities to stimulate mathematics;

In order to pass the course module *Matematics, learning theories and theories of knowledge, 2 credits* students are expected to be able to:

- describe and compare different theories of mathematical learning and relate these to the preschool's policy documents;

In order to pass the course module *Matematics - explorative work and teaching, 8 credits* students are expected to be able to:

- be familiar with the basics of the mathematical concepts of space, form, position and direction, the basic properties of quantities, amounts, orders and number concepts, as well as the basics of measurement, time and change;
- use pedagogical documentation as a tool to monitor mathematical learning processes;
- reflect on their own relationship to mathematics and be able to reflect on mathematical learning theories related to gender.

### **Education**

Instruction is given in the form of seminars, lectures, workshops/laboratory work, individual assignments and group assignments, as well as via the university's virtual learning environment.

Specified teaching sessions are mandatory. Absence must be compensated for as described in the course description.

### **Forms of examination**

a) *Forms of examination*

Course module *Basic mathematics and technology in preschool, 1 credits* is examined on the basis of:

- participation in workshops, G = Pass U = Fail

Course module *Teaching mathematics in the everyday life in preschool, 2 credits* is examined on the basis of:

- Oral and written group examination, grading G = Pass U = Fail

Course module *Matematics, learning theories and theories of knowledge, 2 credits* is examined on the basis of:

- participation in examining seminar, grading G = Pass U = Fail
- Individual paper, grading G-U

Course module *Matemathics - explorative work and teaching, 8 credits* is examined on the basis of:  
- Individual paper, grading A-F

*b) Grading*

The grade on the final course grade will be set according to a seven-point scale related to the learning objectives of the course:

A = Excellent  
B= Very good  
C = Good  
D = Satisfactory  
E = Adequate  
Fx = Fail, some additional work needed  
F = Fail, much additional work needed

Grades on Course module *Basic mathematics and technology in preschool, 1 credits; Teaching mathematics in the everyday life in preschool, 2 credits; Matemathics, learning theories and theories of knowledge, 2 credits* will be set according to a two-point scale:

G = Pass  
U = Fail

*c) Assessment criteria*

The grading criteria for the course are specified in the course description.

*d) Final grade*

In order to pass the course, students must at least receive grade E or G on all examinations, complete all assignments as per the course description and complete all obligatory attendance.

In specific circumstances and after consultation with the directing teacher, examiners can grant students exemption from attending some obligatory tuition. The students can then be required to do make-up assignments.

*e) Failing grades*

Students are offered two opportunities per term to submit an examination. In addition, one opportunity to retake an examination is given during the term or year the course is not offered. Further details are provided in the course description.

Students who receive the grade U, Fx or F twice by the same examiner are entitled to have another examiner appointed at the next opportunity for examination, unless specific circumstances speak against it. Such requests should be made to the Head of Department.

Students who receive the grade E or higher on an examination or assignment may not retake the examination to attain a higher grade. A passing grade cannot be changed to a failing grade at the student's request.

*f) Make-up assignment*

Students who receive the grade Fx have the opportunity to complement the submitted examination task within one week of being informed of the need for complementation (once per examination opportunity). If this is not done within the specified time limit, the student will have to retake the examination. The grade scale A-E is used for completed assignments that have minor format flaws.

**Interim**

If this course are discontinued, or its contents are substantially altered, students have the right to be examined according to this syllabus once per term for three further terms.

**Limitations**

This course may not be included in a degree together with another course, taken in Sweden or elsewhere, of identical or partially similar content.

Such courses include:

- UDG21L Early Childhood Education: Focusing on Mathematics, 15 credits

- UB600Y Early Childhood Education: Focusing Mathematics, 15 credits
- UB303Y Early Childhood Education: Focusing Mathematics, 12 credits
- UB309F Early Childhood Education: Focusing Mathematics, 12 credits

**Misc**

The language of instruction is English. The course can be taken as a stand-alone course or as part of the Programme in Early Childhood Education.

**Required reading**

Information about required reading will be published on the course website at least two months before the start of the course.