



## Information about the subject

**Degree:** Bachelor of Arts Degree in Early Childhood Education

**Faculty:** Faculty of Teacher Training and Education Sciences

**Code:** 1410304 **Name:** Mathematics and its Teaching

**Credits:** 6,00 **ECTS Year:** 3 **Semester:** 1

**Module:** Learning the natural sciences, social sciences and mathematics

**Subject Matter:** Learning mathematics **Type:** Compulsory

**Department:** -

**Type of learning:** Classroom-based learning

**Languages in which it is taught:** Spanish

### Lecturer/-s:

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## Module organization

### Learning the natural sciences, social sciences and mathematics

Subject Matter	ECTS	Subject	ECTS	Year/semester
Learning mathematics	6,00	Mathematics and its Teaching	6,00	3/1
Learning of natural sciences	4,50	Natural Sciences and their Teaching	4,50	4/1
Learning of social sciences	4,50	Social Sciences and their Teaching	4,50	4/1



## Learning outcomes

At the end of the course, the student must be able to prove that he/she has acquired the following learning outcomes:

- R1 The student makes clear and detailed oral and written descriptions and presentations, developing concrete ideas and ending with appropriate conclusions while maintaining a high degree of grammatical, syntactic and orthographic correctness.
- R2 The student integrates and develops logical-mathematical notions in any of the areas of the Early Childhood Education stage.
- R3 The student uses appropriate information from different sources to carry out his/her tasks and cites bibliographic references in accordance with APA standards.
- R4 The student values mathematics as a cultural fact.
- R5 The student participates actively in the tasks proposed in class.
- R6 The student knows and is able to give examples and counterexamples of basic mathematical concepts in the areas of geometry, sets, arithmetic and measurement.
- R7 The student designs and proposes activities and resources to work the different mathematical contents of the Early Childhood Education curriculum appropriate to the different levels, taking into account their own characteristics as well as the difficulties and mistakes that children can make.
- R8 The student justifies the suitability of their proposed activities taking into account the characteristics of children's thinking and the different theories of teaching and learning mathematics.



## Competencies

Depending on the learning outcomes, the competencies to which the subject contributes are (please score from 1 to 4, being 4 the highest score):

GENERAL		Weighting			
		1	2	3	4
G1	To know the objectives, curricular contents and evaluation criteria of Early Childhood Education.			X	
G2	To promote and facilitate learning in early childhood, from a globalizing and integrating perspective of the different cognitive, emotional, psychomotor and volitional dimensions.			X	
G3	To design and regulate learning spaces in contexts of diversity that address the unique educational needs of students, gender equality, equity and respect for human rights.		X		
G6	To know the evolution of language in early childhood, know how to identify possible dysfunctions and ensure their correct evolution. To deal effectively with language learning situations in multicultural and multilingual contexts. Express themselves orally and in writing and master the use of different techniques of expression.			X	
G11	To reflect on classroom practices to innovate and improve teaching. To acquire habits and skills for autonomous and cooperative learning and promote it in students.		X		
SPECIFIC		Weighting			
		1	2	3	4
E35	To know the scientific, mathematical and technological foundations of the curriculum of this stage as well as the theories on the acquisition and development of the corresponding learning.				X
E36	To know didactic strategies to develop numerical representations and spatial, geometric and logical development notions.				X
E37	To understand mathematics as sociocultural knowledge.			X	
E40	To know the most outstanding moments in the history of science and technology and their transcendence.			X	



E41 To elaborate didactic proposals in relation to the interaction between science, technology, society and sustainable development.

x

E42 To promote interest and respect for the natural, social and cultural environment through appropriate educational projects. Encourage experiences of initiation to information and communication technologies.

x



## Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R3, R4, R5, R6, R7, R8	80,00%	Written test: Final summative or continuous theoretical and practical test (open questions, objective test questions, truncated exam, etc.). Preparation of fieldwork memorandums. Solution of case studies, single case, etc.
R1, R2, R3, R4, R5, R6, R7, R8	15,00%	Oral presentation of group and individual work.
	5,00%	Individual monitoring of attendance at face-to-face sessions and active participation in theoretical and practical classes, seminars and tutorials.

### Observations

Is mandatory for the overcoming of the subject to pass sections written examination, worksheet elaboration and oral presentation. Is mandatory for the overcoming of the subject that the student does not make more than 3 serious spelling mistakes in each written proof (such as works or written exam)

It is an essential requirement to pass the subject to obtain at least a 5 in the exam, an average of 5 in the other two sections of the written test and a 5 in the oral presentation.

The written test will consist of an exam with a weight of 50% of between 5 and 7 questions with subsections. Among the types of questions there will be one for the identification of content worked on in a file and to develop manipulative activities to work on said content, true/false questions in which the answer must be justified and other theoretical-practical questions that may involve the description and use of teaching materials.

This section will include the completion of two or three works that will have a weight of 15% in which the knowledge acquired in the different blocks of the subject is applied, and various classroom practices with a weight of 15%.

It is an essential requirement to pass the subject that the student does not commit more than 3 faults. Severe spelling in each written test (both assignments, classroom practices and theoretical-practical exam).

The grades of the passed parts of one course are not saved for another.

The delivery of the works and practices must be done in a punctual way within the periods established by the professor of the subject.



## CRITERIA FOR THE AWARDING OF HONOURS:

As a sign of academic exceptionality, the Honour's Degree will be awarded to the student who, in addition to obtaining a maximum mark in the above criteria, is considered by the teacher to be worthy of such a distinction. And, in accordance with the general regulations which indicate that only one matriculation of honour can be awarded for every 20 students, not per fraction of 20, with the exception of the case of groups of less than 20 students in total, in which one matriculation can be awarded.

## Learning activities

The following methodologies will be used so that the students can achieve the learning outcomes of the subject:

- M1 PARTICIPATIVE MASTERCLASS
- M2 CLASSROOM PRACTICES
- M6 PROBLEM-BASED LEARNING
- M7 GROUP TUTORING
- M8 INDIVIDUAL TUTORING



## IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Presentation of content by the teacher, analysis of competences, explanation and demonstration of skills, abilities and knowledge in the classroom. M1	R1, R2, R4, R5, R6	27,00	1,08
Group work sessions supervised by the teacher, case studies, diagnostic analyses, problems, field studies, computer classroom, visits, data searches, libraries, network, Internet, etc. Meaningful construction of knowledge through student interaction and activity. M2	R1, R2, R3, R4, R5, R6, R7, R8	13,50	0,54
Presentation in plenary. Application of interdisciplinary knowledge M2, M7, M8	R1, R2, R3, R4, R5, R6, R7, R8	8,00	0,32
Personalised attention in small groups. Period of instruction and/or guidance by a tutor with the aim of reviewing and discussing the materials and topics presented in classes, seminars, readings, assignments, etc. M7, M8	R1, R2, R4, R5, R6, R7, R8	7,00	0,28
Set of oral and/or written tests used in the initial, formative or summative assessment of the student. M2	R1, R2, R3, R4, R5, R6, R7, R8	4,50	0,18
<b>TOTAL</b>		<b>60,00</b>	<b>2,40</b>





## LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
Group preparation of readings, essays, problem solving, seminars, papers, reports, etc. to present or deliver in theory classes, practical classes and/or small group tutorials. Work done on the platform or other virtual spaces. M2, M7	R1, R2, R3, R4, R5, R6, R7, R8	36,00	1,44
Student study: Individual preparation of readings, essays, problem solving, seminars, papers, reports, etc. to present or deliver in theory classes, practical classes and/or small group tutorials. Work done on the platform or other virtual spaces. M2, M8	R1, R2, R3, R4, R5, R6, R7, R8	54,00	2,16
<b>TOTAL</b>		<b>90,00</b>	<b>3,60</b>



## Description of the contents

Description of the necessary contents to acquire the learning outcomes.

### Theoretical contents:

Content block	Contents
INTRODUCTION	We will study the importance of logical-mathematical on cognitive development and the main features of logical-mathematical. Analysis of the mathematics content of the curriculum of the Child Education. We will see the objectives and content established in the curriculum of Child Education.
GEOMETRY	Includes the main geometric concepts that appear in early childhood education as well as teaching materials and resources for teaching geometry. Enforcement activities will be conducted.
SETS	We will see the main concepts of sets that appear in early childhood education as well as teaching materials and resources for teaching. Enforcement activities will be conducted.
NUMBERS	We will study the main concepts of creation of the concept of numbers that appear in early childhood education as well as teaching materials and resources for teaching. Enforcement activities will be conducted.
MEASURE	We will introduce the main concepts of measure as they appear in early childhood education as well as teaching materials and resources for teaching. Enforcement activities will be conducted



## Temporary organization of learning:

Block of content	Number of sessions	Hours
INTRODUCTION	5,00	10,00
GEOMETRY	6,00	12,00
SETS	6,00	12,00
NUMBERS	7,00	14,00
MEASURE	6,00	12,00



## References

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- Serrano, J.M., González-Herrero, E. y Pons, R.M. (2008) Aprendizaje cooperativo en matemáticas: diseño de actividades en Educación Infantil, Primaria y Secundaria. Editorial Editum.



## Addendum to the Course Guide of the Subject

Due to the exceptional situation caused by the health crisis of the COVID-19 and taking into account the security measures related to the development of the educational activity in the Higher Education Institution teaching area, the following changes have been made in the guide of the subject to ensure that Students achieve their learning outcomes of the Subject.

**Situation 1: Teaching without limited capacity** (when the number of enrolled students is lower than the allowed capacity in classroom, according to the security measures taken).

In this case, no changes are made in the guide of the subject.

**Situation 2: Teaching with limited capacity** (when the number of enrolled students is higher than the allowed capacity in classroom, according to the security measures taken).

In this case, the following changes are made:

### 1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject will be made through a simultaneous teaching method combining onsite teaching in the classroom and synchronous online teaching. Students will be able to attend classes onsite or to attend them online through the telematic tools provided by the university (videoconferences). In any case, students who attend classes onsite and who attend them by videoconference will rotate periodically.

In the particular case of this subject, these videoconferences will be made through:

☐

Microsoft Teams

☒

Kaltura



## **Situation 3: Confinement due to a new State of Alarm.**

In this case, the following changes are made:

### **1. Educational Activities of Onsite Work:**

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject, as well as the group and personalized tutoring, will be done with the telematic tools provided by the University, through:

☐ Microsoft Teams

☒ Kaltura

Explanation about the practical sessions:



## 2. System for Assessing the Acquisition of the competences and Assessment System

### ONSITE WORK

#### Regarding the Assessment Tools:

☒ The Assessment Tools will not be modified. If onsite assessment is not possible, it will be done online through the UCVnet Campus.

☐ The following changes will be made to adapt the subject's assessment to the online teaching.

Course guide		Adaptation	
Assessment tool	Allocated percentage	Description of the suggested changes	Platform to be used

The other Assessment Tools will not be modified with regards to what is indicated in the Course Guide.

#### Comments to the Assessment System: