Information about the subject

Degree: Bachelor of Arts Degree in Primary School Education

Faculty: Faculty of Teacher Training and Education Sciences

Code: 1160303 **Name:** Teaching of Natural Sciences

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

Module: Teaching and learning Experimental Science

Subject Matter: Experimental Sciences and their Didactics **Type:** Compulsory

Field of knowledge: Social and Legal Science

Department: Mathematics, Natural Sciences, and Social Sciences applied to Education

Type of learning: Classroom-based learning / Online

Languages in which it is taught: Spanish

Lecturer/-s:

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Module organization

Teaching and learning Experimental Science

Subject Matter	ECTS	Subject	ECTS	Year/semester
Experimental Sciences and their Didactics	12,00	Fundamentals of Natural Sciences	6,00	2/2
		Teaching of Natural Sciences	6,00	3/1

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 Interprets and applies the processes through which scientific knowledge is constructed.

R2 Recognizes the foundations of the main didactic approaches in the teaching and learning of Natural Sciences based on the educational curriculum and the characteristics of scientific knowledge.

R3 Designs didactic proposals coherent with meaningful learning of sciences, applying didactic models studied in the subject and considering attention to diversity.

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
CG1	Understand the curricular areas of Primary Education, the interdisciplinary relationship between them, the evaluation criteria, and the body of didactic knowledge around the respective teaching and learning procedures.				x
CG2	Design, plan, and evaluate teaching and learning processes, both individually and in collaboration with other teachers and professionals from the school.				x
CG4	Design and regulate learning spaces in diverse contexts that address gender equality, equity, and respect for human rights, which form the values of citizenship education.				x
CG8	Maintain a critical and autonomous relationship with knowledge, values, and public and private social institutions.			x	
CG9	Value individual and collective responsibility in the attainment of a sustainable future.			x	
CG10	Reflect on classroom practices to innovate and improve teaching work. Acquire habits and skills for autonomous and coopoerative learning and promote it among students.				x

SPECIFIC		Weighting			
		1	2	3	4
CE23	Comprehend the basic principles and fundamental laws of experimental sciences (Physics, Chemistry, Biology, and Geology).	x			
CE24	Know the school curriculum of these sciences.				x
CE25	Pose and solve problems associated with sciences in daily life.	x			
CE26	Value sciences as a cultural fact.		x		

CE27	Recognize the mutual influence between science, society, and technological development, as well as relevant civic behaviors to promote a sustainable future.		x	
CE28	Develop and evaluate curriculum content using appropriate didactic resources and promote the acquisition of basic competencies in students.			x

Assessment system for the acquisition of competencies and grading system

In-class teaching

Assessed learning outcomes	Granted percentage	Assessment method
	0,00%	Oral presentation of group and individual works: Self-assessment systems (oral, written, individual, in groups). Oral tests (individual, in groups, presentation of topics or works).
	20,00%	Active participation in theoretical-practical sessions, seminars, and tutorials: Attitude scale (to gather opinions, values, social and managerial skills, interaction behaviors).
	40,00%	Written tests: Objective tests with short and extended responses.
	20,00%	Projects. Development and/or design works.
	20,00%	Reports/Practice reports.

Observations

The evaluation includes several well differentiated instruments. The final grade will be the weighted average of the results obtained in each of them, provided that all of them have been passed with a minimum mark of 5.
All assignments will have a specific date for completion and delivery. Work or practicals that are not handed in on time and in the Platform will not be accepted.
Grades will not be kept from one course to the next.
Examination composed of the following parts:
- Objective test of multiple-choice questions, with penalties for incorrect answers, related to theoretical content and scientific reasoning questions.
- Developmental questions related to theoretical contents and scientific-didactic reasoning questions.
- Questions related to the practical knowledge acquired in the preparation of the final project.
Single assessment: Exceptionally, this assessment system may be used for those students who cannot be subject to the continuous assessment system because they do not attend at least 70% of the classes.
In this case, they will be assessed in the following way:
- Written tests (short-answer objective tests): 60% (assessed learning outcomes: R1, R2, R3).

- Projects. Development and/or design work: 20% (Assessed learning outcomes: R1, R2, R3)
- Internship reports: 10% (Assessed learning outcomes: R1, R2, R3)
- Active participation in tutorials: 10% (Assessed Learning Outcomes: R1, R2, R3)
Artificial Intelligence (AI):
- Students may use AI for personal study of the subject.
- Students will not be able to use AI for the performance of assessable tasks, unless it is required in a specific activity and the teacher so indicates.
- If AI is used in any of the activities, it must be stated in which part of the activity it has been used, which AI tool has been used and for what purpose.

Online teaching

Assessed learning outcomes	Granted percentage	Assessment method
	40,00%	Written tests: short-answer objective tests, developmental tests. Projects. Reports/Practical reports. Design work, development
	0,00%	Exposición oral de trabajos grupales e individuales: sistemas de autoevaluación (oral, escrita, individual, en grupo). Pruebas orales (individual, en grupo, presentación de temas-trabajos)
	20,00%	Active participation in theoretical-practical sessions, seminars, and tutorials: Attitude scale (to gather opinions, values, social and managerial skills, interaction behaviors).
	40,00%	Projects. Development and/or design works.

Observations

The evaluation includes several well differentiated instruments. The final grade will be the weighted average of the results obtained in each of them, provided that all of them have been passed with a minimum mark of 5.
All assignments will have a specific date for completion and delivery. Work or practicals that are not handed in on time and in the Platform will not be accepted.
Grades will not be kept from one course to the next.
The exam is composed of the following parts:
- Development questions related to theoretical contents and didactic-scientific reasoning questions.
- Questions related to the practical knowledge acquired in the preparation of the final work.
Artificial Intelligence (AI):
- Students may use AI for personal study of the subject.
- Students will not be able to use AI for the performance of assessable tasks, unless it is required in

a specific activity and the teacher so indicates.
- If AI is used in any of the activities, it must be stated in which part of the activity it has been used, which AI tool has been used and for what purpose.

CRITERIA FOR THE AWARDING OF HONOURS:
In accordance with the regulations governing the assessment and grading of subjects in force at UCV, the distinction of "Matrícula de Honor" (Honours with Distinction) may be awarded to students who have achieved a grade of 9.0 or higher. The number of "Matrículas de Honor" (Honours with Distinction) may not exceed five percent of the students enrolled in the group for the corresponding academic year, unless the number of enrolled students is fewer than 20, in which case a single "Matrícula de Honor" (Honours with 9 Distinction) may be awarded. Exceptionally, these distinctions may be assigned globally across different groups of the same subject. Nevertheless, the total number of distinctions awarded will be the same as if they were assigned by group, but they may be distributed among all students based on a common criterion, regardless of the group to which they belong. The criteria for awarding "Matrícula de Honor" (Honours with Distinction) will be determined according to the guidelines stipulated by the professor responsible for the course, as detailed in the "Observations" section of the evaluation system in the course guide.

Learning activities

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

M1	Participatory Master Class
M3	Project-based Learning
M4	Learning Contracts
M5	Seminar Work
M7	Cooperative/Collaborative Work
M9	Group and Individual Tutoring
M10	Individual Tutoring
M11	Participatory Master Class

M13 Seminar Work

M15 Project-based Learning

M16 Learning Contracts

M18 Cooperative/Collaborative Work

M19 Individual Tutoring

M20 Group and Individual Tutoring

IN-CLASS LEARNING

IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Group Work Presentation M3	R1, R2, R3	29,00	1,16
Theoretical Class M1	R1, R2, R3	20,00	0,80
Practical Class M5	R1, R2, R3	2,00	0,08
Tutoring M9	R1, R2, R3	6,00	0,24
Evaluation M10	R1, R2, R3	3,00	0,12
TOTAL		**60,00**	**2,40**

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
Group work M7	R1, R2, R3	34,00	1,36
Individual work M10	R1, R2, R3	56,00	2,24
TOTAL		**90,00**	**3,60**

ON-LINE LEARNING

SYNCHRONOUS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Theoretical class (e-learning mode) M11	R1, R2, R3	35,00	1,40
Practical class (e-learning mode) M18	R1, R2, R3	5,00	0,20
Seminar (e-learning mode) M11	R1, R2, R3	6,00	0,24
Individual tutoring (e-learning mode) M19	R1, R2, R3	1,50	0,06
Evaluation (e-learning mode) M19	R1, R2, R3	2,50	0,10
TOTAL		**50,00**	**2,00**

ASYNCHRONOUS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Individual work Activities (e-learning mode)		58,75	2,35
Group Work (e-learning mode)		27,50	1,10
Discussion Forums (e-learning mode)		2,50	0,10
Asynchronous Tutoring (e-learning mode)		1,25	0,05
Theoretical-Practical Class (distance mode)		10,00	0,40
TOTAL		**100,00**	**4,00**

Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
SCIENTIFIC LITERACY. THE NATURAL SCIENCES CURRICULUM IN THE VALENCIAN COMMUNITY IN PRIMARY EDUCATION	INTRODUCTION - SCIENTIFIC LITERACY - INTRODUCTION TO THE CONCEPT OF ENVIRONMENT - THE NATURAL SCIENCES CURRICULUM IN THE VALENCIAN COMMUNITY IN PRIMARY EDUCATION
LEARNING NATURAL SCIENCES IN PRIMARY EDUCATION	STUDENTS' CONCEPTIONS - LEARNING NATURAL SCIENCES IN PRIMARY EDUCATION - MISSCONCEPTIONS - SCIENTIFIC LEARNING IN CHILDREN AND INFLUENCING FACTORS - SELF-REGULATION OF SCIENTIFIC LEARNING
TEACHING NATURAL SCIENCES IN PRIMARY EDUCATION	METHODOLOGICAL PROPOSALS FOR TEACHING SCIENCES IN PRIMARY EDUCATION - TEACHING RESOURCES - EVALUATION OF SCIENTIFIC COMPETENCE

Temporary organization of learning:

Block of content	Number of sessions	Hours
SCIENTIFIC LITERACY. THE NATURAL SCIENCES CURRICULUM IN THE VALENCIAN COMMUNITY IN PRIMARY EDUCATION	8,00	16,00
LEARNING NATURAL SCIENCES IN PRIMARY EDUCATION	10,00	20,00
TEACHING NATURAL SCIENCES IN PRIMARY EDUCATION	12,00	24,00

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