

## 26615 - Didactics: Physical and Chemical Media

### Syllabus Information

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**Academic Year:** 2019/20

**Subject:** 26615 - Didactics: Physical and Chemical Media

**Faculty / School:** 107 -

202 -

301 -

**Degree:** 300 - Degree in Primary School Education

298 - Degree in Primary School Education

299 - Degree in Primary School Education

**ECTS:** 6.0

**Year:** 300 - Degree in Primary School Education: 2

299 - Degree in Primary School Education: 2

298 - Degree in Primary School Education: 2

**Semester:** First semester

**Subject Type:** Compulsory

**Module:** ---

## 1.General information

### 1.1.Aims of the course

The subject and their expected results respond to the following statements and objectives:

1. To know the curricular proposal of the area corresponding to the Sciences of nature to explain process of teaching - learning of physico-chemical sciences for 6-12 years.
2. To Understand and relate the basic physical and chemical concepts for the teaching of the Sciences of nature in Primary Education.
3. To understand the nature of the physical and chemical phenomena in the context of Primary Education and educational opportunities related to the teaching-learning process of the same, as well as the importance of experimental work in this process.
4. To analyse some problems of teaching-learning of the area which highlight the physical and chemical aspects.
5. To designing didactic proposals related to the physical and chemical aspects of the medium in Primary Education.
6. To meet and assess projects and curricular materials in relation to physical-chemical sciences aimed at Primary Education.
7. To develop attitudes of respect for diversity with criteria of fairness and environmental conservation through knowledge of life's problems.

### 1.2.Context and importance of this course in the degree

This subject constitutes the first contact with a teaching discipline in the specific field of experimental sciences. It is especially relevant in the preparation of teachers of Primary Education in the face of his professional career since it highlights the need to combine the discipline with his didactic nature. It helps especially in the development of rigorous thinking strategies and skills.

### 1.3.Recommendations to take this course

An open and positive attitude towards the experimental sciences course will provide students a satisfactory development of the subject. And on the other hand, it is a chance to improve their own culture in the scientific dimension.

## 2. Learning goals

### 2.1. Competences

To overcome the course, the student will be more competent to... In terms of professional skills development:

- Recognize the physico-chemical sciences and the relationship science, technology and society, as human activity which forms an important part of our cultural heritage and whose access is a universal right.
- Deepen the understanding of the knowledge of the middle of Primary Education curricular area to improve its analysis from a teaching perspective.
- Understand the basic principles of physics and chemistry that will allow an interpretation that is meaningful and appropriate to the educational stage of certain phenomena in their environment.
- How to use the experimental works as an essential physical and chemical aspects of educational resource in Primary Education.
- Design activities and teaching resources appropriate to promote the acquisition of basic skills in children of Primary Education.
- Assess the attitudes and responsible behaviour in terms of solidarity, sustainability and respect for the environment.

### 2.2. Learning goals

In order to pass the course, student should be able to:

1. Demonstrate to have basic knowledge about the physical and chemical aspects of the environment and their application in primary education (the secondary school scientific knowledge is considered as the minimum required).
2. Write informs about the experimental activities carried out their learning.
3. Provide informed arguments and ideas based on scientific and educational criteria from the activities developed during the course, such as workshops and meetings about current topics in science education. Students also show the necessary communicative and reasoning skills in order to solve different educational situations, both practical and theoretical, during the course.
4. Design and communicate adequate learning proposals to primary level. Moreover, they should be able to integrate the different aspects learned along the subject in their proposals and justify their decisions.

### 2.3. Importance of learning goals

From the point of view of the needs of teachers in Primary Education is the starting point for the construction of educational knowledge of the content of physics and chemistry in Primary Education provide them a sustainable professional development.

## 3. Assessment (1st and 2nd call)

### 3.1. Assessment tasks (description of tasks, marking system and assessment criteria)

The student shall demonstrate that it has achieved learning outcomes provided through the following evaluation seminars and sessions theoretical and practical.

- Oral and written presentation of didactic proposals to faculty and peers and colleagues.
- Preparation of reports based on the experimental activities.
- In cases in which the participation and attendance is not approved or you want to improve the qualification awarded, they will have the option to present a work written together with the final written test.
- This work will be duly specified from the beginning of the course.
- Partial evidence and written final test of theoretical and practical character of the contents covered in the course.

## Criteria of evaluation

The evaluation of the course will be based on the following aspects:

- Assistance to seminars and practical sessions.
- Participation and collaboration among equals in the development of such activities will be valued.
- Oral and written presentation of didactic proposals to faculty and peers and colleagues.
- The teaching quality, the justification of the proposal before the same and expository clarity will be valued.
- Preparation of reports based on the experimental activities. For the presentation of these reports is a must person perform the corresponding experimental activity.

## Qualification criteria and requirements to pass the course

Contributing to a maximum of 40% in the final qualification: attendance to seminars and practical sessions and the preparation of reports based on the experimental activities. Contributing up to a maximum of 10% of the final grade. The oral and written presentation of didactic proposals, contribute up to 30% of the final grade.

Contributing to a maximum of 60% in the final qualification: written evidence is necessary to approve (obtain a score of at least 5.0 on 10.0) in the final test (or partial tests) course to overcome it, regardless of the results obtained in the rest of assessable activities (active participation, practices and didactic proposals report).

In cases in which is not expired either of the tests and, therefore, the subject is not exceeded, the final grade in the corresponding announcement will coincide with the minimum obtained from the lower to 5.0 if it had presented the final test written or with N P in the case not be submitted to this test. The rating of each approved test will be in effect throughout the academic year, including the second call. These evaluation criteria are the same for students in 5th and 6th call.

## 4.Methodology, learning tasks, syllabus and resources

### 4.1.Methodological overview

The learning process that has been designed for this course is based on methodology:

- practical
- participatory
- cooperative work and
- critical thinking

### 4.2.Learning tasks

To assist in achieving the expected results includes the following activities...

- Theoretical expositions given by faculty and collaborators of the subject visits and conferences outside the Center Experimental work in the laboratory of physical and chemical
- Activities of reflection in small and large group reporting individual development group of some of the tasks of design and planning
- Presentations of works both individual and group

### 4.3.Syllabus

1. Physical and chemical aspects of the Sciences of nature and its contribution to educational competencies into the curriculum framework of Primary Education.
2. Characteristics of children's scientific thinking and teaching models.
3. Contained relevant physicochemical for Primary Education.
4. Specific difficulties in teaching and learning of the selected content.
5. Experimental physico-chemical nature activities, outputs and visits in Primary Education.
6. Analysis, planning and design of didactic proposals on physico-chemical aspects of the medium.
7. Introduction of scientific topics on physical and chemical aspects of the medium.

#### **4.4.Course planning and calendar**

Calendar of sessions and presentations will be communicated through the ring Digital teacher (ADD) at the beginning of the academic year of the course. The activities and key dates will be communicated through the ring Digital teacher (ADD) at the beginning of the academic year of the course. The dates of the final tests are available on the website of the Centre.

#### **4.5.Bibliography and recommended resources**

They are located in the <http://psfunizar7.unizar.es/br13/eBuscar.php?tipo=> library web page