

## 26572 - Didactics of Natural Sciences

### Syllabus Information

**Academic year:** 2023/24

**Subject:** 26572 - Didactics of Natural Sciences

**Faculty / School:** 107 - Facultad de Educación

202 - Facultad de Ciencias Humanas y de la Educación

301 - Facultad de Ciencias Sociales y Humanas

**Degree:** 301 - Degree in Nursery School Education

302 - Degree in Nursery School Education

303 - Degree in Nursery School Education

**ECTS:** 6.0

**Year:** 2

**Semester:** Second semester

**Subject type:** Compulsory

**Module:**

### 1. General information

The main goal of the subject is to train future teachers of Early Childhood Education in the knowledge and reflection on the disciplinary contents related to Natural Sciences and how to work on them in Early Childhood Education.

It is essential to analyse what scientific content should be dealt with at this stage according to current legislation, so it is necessary to lead pupils to reflect critically on whether this content is the most appropriate and how it should be worked on in the classroom. In this period, and also from the science subjects, it is necessary to work with students on other essential aspects for teaching practice, such as the type of society and of people we want. These approaches and goals are aligned with the Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 (<https://www.un.org/sustainabledevelopment/es/>), so that the acquisition of the learning results of the subject provides training and competence to contribute to some extent to their achievement: SDG 4, SDG 12, SDG 13 and SDG 15.

{Once the basic contents and theories that currently best explain how to learn and how to teach have been studied in the first year of the degree, it is necessary to start from the specific didactics to conceive how this basic psychological and pedagogical knowledge should be applied to the specific areas or subjects.

It is advisable to attend classes in person, both laboratory and single-group classes, since the contents of the subject and knowledge of the environment require direct contact with the environment.

Likewise, since it is a subject with experimental content, it is recommended to carry out all those practical activities that are indicated, as well as to keep up to date the contents that will be worked on in the classroom.

### 2. Learning results

1. It relates the scientific and technological foundations of the Early Childhood Education curriculum, as well as the theories on the acquisition and development of the corresponding learning.
2. Knows how scientific models are built in Early Childhood Education, as well as the didactic strategies to develop them.
3. Knows the scientific and experimental methodology and is able to promote scientific thinking and experimentation at the Early Childhood Education stage..
4. Elaborates didactic proposals in relation to the interaction between science, technology, society and sustainable development, being able to use information and communication technologies.
5. Uses an appropriate vocabulary both from a scientific point of view and from a grammatical and spelling point of view.
6. Appreciates the social interest of promoting respect for the natural environment through appropriate didactic projects.

### 3. Syllabus

We will start from the previous knowledge legally established to pass Compulsory Secondary Education to focus on the problems of its teaching and learning.

1. Fundamentals of the Didactics of Experimental Sciences for the Early Childhood Education stage.
2. The Sciences of Nature in the curriculum of Early Childhood Education.

3. The scientific processes in the classrooms of Natural Sciences in Early Childhood Education.
4. Didactic resources for the teaching of the physical-natural environment.

#### 4. Academic activities

The course is based on the following types of activities:

- a. Master classes (10 hours). Sessions in which contents and questions related to the subject will be explained in a single group.
- b. Problem solving and case studies (12 hours). Sessions in which the resolution of problematic situations and practical cases are proposed.
- c. Laboratory practice (24 hours).
- d. Individual or group work and student study hours (96 hours).
- e. Outings to the nearby natural environment (Special practices in facilities, 5 hours).
- f. Evaluation tests (3 hours).

#### 5. Assessment system

Students must demonstrate that they have achieved the intended learning results through the following assessment activities:

- Productions programmed during the development of the subject that will gather the results of the activities and/or critical reflection on them (30% of the grade).
- A written exam on the theoretical and practical topics covered (70% of the grade).

In order to average the two grades (practical and written exam) the student must achieve at least a 50% of the total score of each section. In any case, as part of the evaluation, the teacher may request, at random, the oral defense of the test or assignment delivered in writing, for the verification of the grade.

In the 5th and 6th year, the passing of the subject by the students will only imply the passing of a written test of a theoretical-practical nature in which reference will be made to what has been worked on throughout the year.

*Finally, it must be taken into account that the Rules of Coexistence of the school will be applicable University of Zaragoza to the irregularities committed in the assessment tests by means of academic fraud as well as the application of article 30 of the Regulation of Learning Assessment Standards in relation to the irregular practices other than academic fraud*