



Universitat de Lleida

DEGREE CURRICULUM
**LEARNING EXPERIMENTAL
SCIENCES II**

Coordination: IBAÑEZ PLANA, MANUEL

Academic year 2020-21

Subject's general information

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|---|--|---------------|------------------|------------------|
| Subject name | LEARNING EXPERIMENTAL SCIENCES II | | | |
| Code | 100874 | | | |
| Semester | 2nd Q(SEMESTER) CONTINUED EVALUATION | | | |
| Typology | Degree | Course | Character | Modality |
| | Bachelor's Degree in Primary Training | 3 | COMPULSORY | Attendance-based |
| | Double bachelor's degree: Degree in Primary Training and Degree in Physical Activity and Sports Sciences | 4 | COMPULSORY | Attendance-based |
| Course number of credits (ECTS) | 6 | | | |
| Type of activity, credits, and groups | Activity type | PRAULA | | TEORIA |
| | Number of credits | 1.8 | | 4.2 |
| | Number of groups | 5 | | 4 |
| Coordination | IBAÑEZ PLANA, MANUEL | | | |
| Department | ENVIRONMENT AND SOIL SCIENCES | | | |
| Important information on data processing | Consult this link for more information. | | | |

| Teaching staff | E-mail addresses | Credits taught by teacher | Office and hour of attention |
|-----------------------------|-------------------------|---------------------------|------------------------------|
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| DEL BARRIO ARRANZ, MERCEDES | merce.delbarrio@udl.cat | 3 | |
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Subject's extra information

The Didactics of Experimental Sciences II is a compulsory subject that introduces the fundamental didactic knowledge for science education. This set of knowledge should allow students to plan well-founded classroom interventions aimed at promoting both the construction of scientific knowledge and the active research of boys and girls.

Learning objectives

The course emphasizes the scientific ideas that must be worked with the primary school students (what we will call school science content), and how to approach the teaching-learning process as an activity that integrates inquiry, modeling and communication.

The objectives of the subject are:

- Acquire a vision of science and scientific activity well founded epistemologically.

- Become familiar with scientific activity by actively participating in short research.

- To form a didactic model focused on the active investigation of boys and girls and on the processes of conceptual evolution, and to use it in the planning of sequences of activities.

- Know the contents and curricular orientations of the Natural Environment area

- Know, propose and evaluate activities to promote the development of scientific competence in primary school.

Competences

- Understand the basic principles and fundamental laws of the experimental sciences.

- Know the school curriculum of these sciences.

Know and apply information and communication technologies in classrooms.

Know 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.

Develop the tutoring and orientation functions with the students and their families, attending to the students' own needs. Assume that the exercise of the teaching function must be perfected and adapted to scientific, pedagogical and social changes throughout life.

Design and regulate learning spaces in contexts of diversity and that take into account gender equality, equity and respect for human rights that shape the values of citizen training.

Design, plan and evaluate teaching and learning processes, both individually and in collaboration with other teachers and professionals at the center.

Encourage reading and critical text commentary on the different scientific and cultural domains contained in the school curriculum.

Generate innovative and competitive proposals in research and professional activity.

Maintain an attitude of respect for the environment (natural, social and cultural) to promote values, behaviors and practices that address gender equality, equity and respect for human rights.

Pose and solve problems related to everyday life.

Reflect on classroom practices to innovate and improve teaching. Acquire habits and skills for autonomous and cooperative learning and promote it among students.

Work in teams and with teams (from the same field or interdisciplinary).

To value the sciences as a cultural fact

Subject contents

1. Learn science in primary education. Earth - Universe
2. Learn science in primary education. Matter and energy: Light, sound, forces and movement.
3. Learn science in primary education. Being alive: levels of organization, inheritance and evolution.
4. Learn science in primary education. Living being: Ecosystems, plants and animals.

Methodology

The teaching methodology and the proposed evaluation may undergo some modification depending on the restrictions on attendance that the health authorities impose.

TEORIA group sessions:

Presentations by the teaching staff of the content and basic issues on the agenda. It is carried out with the whole class group and allows the exhibition of the main contents through open and active participation by the students. Activities are included that can be done individually, in pairs or in small groups and are shared in the class group.

This year these sessions will be mostly virtual.

PRAAULA group sessions:

Small group work spaces supervised by the teaching staff aimed at delving into the content and topics worked on in the large group.

Tutorials:

Tutorials for solving doubts, preparing for written tests. Exam reviews.

Student work:

Preparation of activities, search for information and materials, study and preparation of tests, readings

Development plan

SCHEDULE: LEARNING ACTIVITIES

TEORIA GROUP SESSIONS, 42 classroom hours

Indicative planning of classroom sessions

| DESCRIPTION | DURATION/WEEKS | OBJETIVES | STUDENT'S TASKS | % EVALUATION |
|------------------------------|----------------|--|---|--------------|
| Model Earth and Universe | 1 -5 | Construction of this model Introduction to its didactic application | Diary, exercises and other activities Planning | 20 |
| Model Matter and Energy | 6 - 9 | Construction of this model Introduction to its didactic application | Diary, exercises and other activities Planning | 20 |
| Model the living: Evolution | 10 -12 | Construction of this model Introduction to its didactic application | Diary, exercises and other activities Planning | 15 |
| Model the living: Ecosystems | 13 -15 | Construction of this model Introduction to its didactic application | Diary, exercises and other activities Planning | 15 |

PRAAULA GROUP SESSIONS, 18 hours of face-to-face modality

Orientative planning of classroom sessions. Seminars, workshops, problem solving

| DESCRIPTION | DURATION/WEEKS | OBJECTIVES | STUDENT'S TASKS | % EVALUATION |
|------------------------------|----------------|--|---|--------------|
| Model Matter and Energy | 1- 5 | Construction of this model Introduction to its didactic application | Diary, exercises and other activities Planning | 10 |
| Model the living: Evolution | 6 - 10 | Construction of this model Introduction to its didactic application | Diary, exercises and other activities Planning | 10 |
| Model the living: Ecosystems | 11- 15 | Construction of this model Introduction to its didactic application | Diary, exercises and other activities Planning | 10 |

Evaluation

- Class diary

- Programming
- Written exercises
- Summary of texts
- Solving scientific problems of everyday life
- Learning activities

| DESCRIPTION | % EVALUATION |
|-----------------------------------|--------------|
| Earth and Universe Model | 25 |
| Matter and Energy Model | 25 |
| Model of living being: Evolution | 25 |
| Model of living being: Ecosystems | 25 |

Bibliography

GENÉ, A. et al. 2007. Pensar, que bé! Com acompanyar els infants a descobrir el món. Lleida: Pagès.

MARTÍ, J. 2012. *Aprendre ciències a l'educació primària*. Barcelona: Graó

MORIN, E. 2001. Los siete saberes necesarios para la educación del futuro. Paidós.

PUJOL, R. M. 2003. Didáctica de las Ciencias en la Educación Primaria. Síntesis.

Documents oficials

Currículum l'àrea del medi natural, social i cultural. DECRET 119/2015, de 23 de juny, d'ordenació dels ensenyaments de l'educació primària. <http://portaldogc.gencat.cat/utillsEADOP/PDF/6900/1431926.pdf>

Annex I. Competències bàsiques .Currículum educació primària - Decret 142/2007 DOGC núm. 4915
http://www.xtec.cat/alfresco/d/d/workspace/SpacesStore/c54ef8e6-58a5-4e21-9987-35144cbb88b9/competencies_pri.pdf

Webs d'interès

CDEC (Centre de Documentació i Experimentació en Ciències), <http://srvcnpbs.xtec.cat/cdec/>

Aplicatiu de Recobriment Curricular (materials didàctics del CDEC) <http://apliense.xtec.cat/arc/cercador>

Guies Habitat per a l'educació ambiental <http://80.33.141.76/habitat/>

Teachingchannel www.teachingchannel.org

Annenberg Learner www.learner.org

National Science Teacher Association www.nsta.org

National STEM Center www.nationalstemcentre.org.uk