



Universitat de Lleida

DEGREE CURRICULUM

LEARNING OF EXPERIMENTAL SCIENCES I

Coordination: IBAÑEZ PLANA, MANUEL

Academic year 2020-21

Subject's general information

Subject name	LEARNING OF EXPERIMENTAL SCIENCES I			
Code	100988			
Semester	1st Q(SEMESTER) CONTINUED EVALUATION			
Typology	Degree	Course	Character	Modality
	Bachelor's Degree in Primary Training	3	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	4		3
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
CANELA XANDRI, ANNA	anna.canela@udl.cat	6	
IBAÑEZ PLANA, MANUEL	manel.ibanez@udl.cat	7,8	
SOLE LLUSSÀ, ANNA	anna.sole@udl.cat	6	

Subject's extra information

The Didactics of Experimental Sciences I 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

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Subject contents

1. The nature of science. Implications for school science to Primary education.

Characteristic processes of scientific activity. Questions in science. Generate data and establish facts. Elaborate explanations. Models and modeling.

2. Learn science in primary education. Matter and energy. Physical processes and chemical changes

3. Learn science in primary education. Health and human body. Keep them alive. Changes and evolution.

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
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Development plan

SCHEDULE: LEARNING ACTIVITIES

TEORIA GROUP SESSIONS, 42 classroom hours

Indicative planning of classroom sessions

DESCRIPTION	DURATION/WEEKS	OBJETIVES	STUDENT'S TASKS	% EVALUATION
Inquiry	1 -5	Introduction to research at Primary school	Video analysis of scientific practices Planning and conducting inquiries	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: Staying alive	10 -12	Construction of this model Introduction to its didactic application	Diary, exercises and other activities Planning	15

Model the living: Change and Evolution	13 -15	Construction of this model Introduction to its didactic application	Diary, exercises and other activities Planning	15
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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: Staying alive	6 - 10	Construction of this model Introduction to its didactic application	Diary, exercises and other activities Planning	10
Model the living: Change and Evolution	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
Inquiry	25
Matter and Energy Model	25
Model of living being: Stay alive	25
Model of living being: Change and evolution	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/utisEADOP/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