COURSE PROGRAM

Academic Year: 2025/2026

Identification and characteristics of the course			
Code	501631 (FEYP) 501680 (FFP) 502870 (FFP_Bilingüe) 502035 (CUSA)	ECTS Credits	6
Course name (English)	Earth & Life Science Education		
Course name (Spanish)	Didáctica del Medio Físico y los Seres Vivos		
Degree programs	Grado en Educación Primaria		
Faculty/School	Facultad de Formación del Profesorado (FFP)		
Semester	6th	Type of course	Compulsory
Module	Didactic - disciplinary		
Matter	Teaching and Learning of Experimental Sciences		

Lecturer/s			
Name	Office	E-mail	Web page
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Subject Area	Teaching Experimental Sciences (Science Education)
Department	Teaching Experimental Sciences and Mathematics
Coordinating Lecturer (If more than one)	

Competencies /Learning Outcomes*
1. **General competencies** GC-9: To value individual and collective responsibility in achieving a sustainable future GC-11: To know and apply information and communication technologies in the classroom. Selectively discern audiovisual information that contributes to learning, civic training and cultural richness
2. Specific competencies SC-25: To understand the basic principles and laws of Experimental Sciences (Physics, Chemistry, Biology and Geology). SC-26: To know these sciences curriculum.

**** The sections concerning competencies, course outline, educational activities, teaching methodologies, learning outcomes and assessment systems must conform to that included in the ANECA verified document of the degree program.

SC-27: To suggest and solve problems by applying sciences to daily life and appreciate sciences as a cultural fact SC-28: To value sciences as a cultural fact. SC-29: To recognize the mutual influence between science, society and technological development, as well as appropriate citizen behavior, to ensure a sustainable future. SC-30: To develop and evaluate curriculum content through appropriate teaching resources and promote students' acquisition of competencies (Experimental Sciences).
TC-1: To know how to transmit information, ideas, problems and solutions to both specialized and non-specialized audiences TC-1.3: To use ICTs as an essential tool for intellectual work, information, learning and communication TC-2.2: Efficiently use a set of learning resources, techniques and strategies that guarantee autonomous, responsible and continuous learning throughout life TC-3.6: Reflect critically and logically on the need to eliminate all forms of discrimination, direct or indirect, in particular, racial discrimination and discrimination against women, derived from sexual orientation or that caused by a disability.
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Contents
Course outline*
The environment and its teaching. Main natural systems: lithosphere, atmosphere, hydrosphere and biosphere. Living beings and their teaching. Diversity of life. Dependence relations between living beings and the environment. Ecology, environment and environmental education.
Course syllabus
Name of lesson 1: The physical environment and its teaching **Contents of lesson 1:** The atmosphere. The hidrosphere. The Earth as a dinamical planet and in evolution. The Earth has a past: history of the Earth. The geosphere. Structure and composition fo the Earth. Plate tectonics. Terrestrial materials: minerals and rocks. Introduction to the design of teaching-experimental experiences in Primary Education: exposition, analysis and discussion. **Description of the practical activities of lesson 1**: Outings to the environment and experimental laboratory and classroom activities, based on different methodologies, for the teaching-learning of the physical environment.
Name of lesson 2: Living beings, their diversity and functioning **Contents of lesson 2:** Bioelements. Biomolecules. Diversity of living beings. Their classification, new trends and the five kingdoms. Other forms of organization: virus. The cell: prokaryotic and eukaryotic organization. Nutrional types: autotrophs and heterotrophs. Monerans. Protists. Pluricellularity: cells, tissues, systems, apparatuses and organs. Fungi. Plants. Animals. The human body and health, its structure and functioning. Introduction to the design of experiences teaching-experimental experiences in Primary Education: exposition, analysis and discussion. **Description of the practical activities of lesson 2:** Outings to the environment and experimental laboratory and classroom activities, based on different methodologies, for the teaching-learning of the living beings.
Name of lesson 3: The environment and its conservation: ecology and physical

environment.

Contents of lesson 3: Ecology, physical environment and environmental education. Introduction to the study of the ecosystems and their dynamics. The flow of energy and the cycling of matter. Consequences of human interaction in the ecosystems. Teaching use of physical environment in Primary Education. The natural environemnt in the different landscapes of Extremadura. Introduction to the design of teaching-experiemental experiences in Primary Education: exposition, analysis and discussion.

Description of the practical activities of lesson 3: Outings to the environment and experimental laboratory and classroom activities, based on different methodologies, for the teaching-learning of the physical environment and living beings.

Sustainable Development Goals taken into account

☐	☐	☒	☐	☐	☒
☐	☐	☐	☐	☐	☐
☒	☒	☒	☐	☐	☐

Educational activities *

Student workload in hours by lesson		Lectures	Practical activities				Monitoring activity	Homework
Lesson	**Total**	**L**	**HI**	**LAB**	**COM**	**SEM**	**SGT**	**PS**
1	24.25	6.25		3				15
2	82	28		9				45
3	26.75	8.75		3				15

Assessment **	17	2						15
TOTAL	150	45		15				90

L: Lectures (85 students)
HI: Hospital internships (7 students)
LAB: Laboratory or field practices (15 students)
COM: Computer room or language laboratory practices (20 students)
SEM: Problem classes or seminars or case studies (40 students)
SGT: Scheduled group tutorials (educational monitoring, ECTS type tutorials)
PS: Personal study, individual or group work and reading of bibliography

Teaching Methodologies*

1.- Oral presentation. Direct teaching. Large group classes aimed at presenting the different concepts and procedures associated with the subject with the help of bibliographic and audiovisual materials.
2.- Discussion and debate. Oral presentation is combined with discussion activities and questions for students to answer so that they can build new concepts based on familiar concepts (related to other subjects already studied or other topics in the program with which there are significant interrelationships).
3.- Annotated reading of bibliographic materials.
4.- Viewing of audiovisual materials (documentaries, films, etc.) and discussion and debate about them.
5.- Presentation of work done independently. This activity is scheduled so that students can present the work and materials they have produced independently.
6.- Taking exams. This activity aims to assess students' learning outcomes in relation to the objectives or competencies set out in the teaching plan for the subjects that make up a course.
8.- Experiences and practical applications. This activity is aimed at simulating and practicing the strategies and techniques presented by specialists and professionals and discussing and analysing scientific and technical documentaries.
10.- Analysis and discussion of bibliographic and audiovisual materials.
11.- Debates and discussions on current issues related to the subject.
13.- Guidance, decision-making, and resolution of questions raised by students. Monitoring of individual or small group work. Individual and group consultation and advice.
15.- Study of the subject matter and exam preparation.
16.- Searching for and consulting bibliographic material for projects.
18.- Analysis of texts, audiovisual materials, and sociological data.

Learning outcomes *

***** Indicate the total number of evaluation hours of this subject.

- Explain, relate, and apply the most relevant concepts and procedures of the general fundamentals of Natural Sciences.
- Conceptualize and critically analyze aspects related to Science, Technology, and Society and their development in Primary Education.
- Understand the general theories of Science Teaching necessary to contextualize, adapt, and apply the methodology and teaching content of Natural Sciences in the primary school classroom.
- Write reports, assessing scientific and teaching knowledge, correct language use, the ability to interrelate and synthesize, as well as active participation.
- In-depth knowledge of the content of subjects related to Environmental Studies in primary education and the teaching of experimental sciences.

Assessment systems *

n accordance with the provisions of the Evaluation Regulations of the Official Undergraduate and Master's Degrees of the University of Extremadura (DOE 212, November 3, 2020), the evaluation may be continuous or global.
The choice between the continuous evaluation system or the global evaluation system corresponds to the student, who will be able to carry it out during the first quarter of the period of teaching of the subject, for each of the calls (ordinary and extraordinary). For this purpose, the faculty will manage these requests through a specific space created for this purpose in the Virtual Campus. When a student does not make his/her decision explicit through the established procedure, it will be understood that he/she chooses the continuous evaluation. Once the type of evaluation has been chosen, the student will not be able to change in the ordinary call of that semester and will abide by the evaluation regulations for the extraordinary call.

Training	*Assessment instruments*	*Weighting*
Theoretical	Face-to-face written or oral tests	70 %
Practical	Participation in seminars and practical activities planned in them, in class and on the virtual campus	30 %

In order to pass the course it is an indispensable condition to pass (5 points) in each of the two parts. The part of the grade corresponding to the practical training (seminars and practical activities) is not recoverable in the ordinary call. In the extraordinary call the student will be able to recover this part, for this he/she will have to take a written test, with a value of 30%, on the contents treated in the practical training (seminars and practical activities).

Global Assessment:

Students who opt for this global evaluation system must take, in addition to the written test on the theoretical training (70 %), another written test, with a value of 30 %, on the contents covered in the practical training (seminars and practical

activities). It will be an essential condition to pass the course to pass (5 points) in each of the two parts.

The evaluation of the written tests and activities will consider the correct use of language, including proper spelling and grammar.

Bibliography (basic and complementary)

Legislation

Decreto 98/2022, de 20 de julio, por el que se establecen la ordenación y el currículo de la Educación Infantil para la Comunidad Autónoma de Extremadura. Diario Oficial de Extremadura, 143, de 26 de Julio de 2022. https://doe.juntaex.es/eli/es-ex/d/2022/07/20/98/dof/spa/pdf

Decreto 107/2022, de 28 de julio, por el que se establecen la ordenación y el currículo de la Educación Primaria para la Comunidad Autónoma de Extremadura. Diario Oficial de Extremadura, 151, de 5 de agosto de 2022. https://doe.juntaex.es/eli/es-ex/d/2022/07/28/107/dof/spa/pdf

Decreto 110/2022, de 22 de agosto, por el que se establece la ordenación y el currículo de la Educación Secundaria Obligatoria para la Comunidad Autónoma de Extremadura. Diario Oficial de Extremadura, 164, de 25 de agosto de 2022. https://doe.juntaex.es/eli/es-ex/d/2022/08/22/110/con/20221118/spa/pdf

Decreto 109/2022, de 22 de agosto, por el que se establecen la ordenación y el currículo del Bachillerato para la Comunidad Autónoma de Extremadura. Diario Oficial de Extremadura, 164, de 25 de agosto de 2022. https://doe.juntaex.es/eli/es-ex/d/2022/08/22/109/con/20221027/spa/pdf

Ley Orgánica 3/2020, de 29 de diciembre, por la que se modifica la Ley Orgánica 2/2006, de 3 de mayo, de Educación. Boletín Oficial del Estado, 340, de 30 de diciembre de 2020. https://www.boe.es/eli/es/lo/2020/12/29/3

Ley Orgánica 8/2021, de 4 de junio, de protección integral a la infancia y la adolescencia frente a la violencia. Boletín Oficial del Estado, 134, de 5 de junio de 2021. https://www.boe.es/eli/es/lo/2021/06/04/8/con

Ley Orgánica 10/2022, de 6 de septiembre, de Garantía Integral de la Libertad Sexual. Boletín Oficial del Estado, 215, de 7 de septiembre de 2022. https://www.boe.es/eli/es/lo/2022/09/06/10/con

Ley Orgánica 2/2023, de 22 de marzo, del Sistema Universitario. Boletín Oficial del Estado, 70, de 23 de marzo de 2023. https://www.boe.es/eli/es/lo/2023/03/22/2/con

Basic bibliography:

Anguita, F. y Moreno F. (1993). Procesos geológicos externos y geología ambiental. Madrid: Rueda.

Caballero Armenta, M. (2011). Enseñar Ciencias Naturales en Educación Primaria. Madrid: CCS.

Cañal de León, P. (Coord.), García-Carmona, A., & Cruz-Guzmán, M. (2016). Didáctica de las Ciencias Experimentales en Educación Primaria. Madrid: Paraninfo.

Curtis, E.; Barnes, N.S.; Schnek, A.; Massarini, A. (2008). Biología. Buenos Aires: Panamericana.

Garrido, J.M.; Perales, J.J.; Galdón, M. (2008). Ciencia para educadores. Madrid: Pearson educación.

González García, F. (Coord.) (2015). Didáctica de las Ciencias para Educación Primaria. I- Ciencias de la vida. Madrid: Pirámide.
Jiménez-Aleixandre, M.P. (Coord.). (2003). Enseñar ciencias (Serie Didáctica de las ciencias experimentales). Barcelona: Graó.
Martí Feixas, J. (2012). Aprender ciencias en la educación primaria. Barcelona: Graó.
Pujol, R. M. (2003). Didáctica de las ciencias en la educación primaria. Madrid: Síntesis.
Romero, J.M., Perales Palacios, F.J., & Galdón Delgado, M. (2007). Ciencia para Educadores. Madrid: Pearson.
Vílchez González, J.M. (Coord.) (2014). Didáctica de las Ciencias para Educación Primaria. I- Ciencias del espacio y de la Tierra. Madrid: Pirámide.

Complementary bibliography:

Alda Bueno F.L. , Fuentes Silveira, M.J., Serramito Calo, M. (2024). Situaciones de aprendizaje en biología y geología. *Alambique: Didáctica de las Ciencias Experimentales*, *116, 8-14.*
De las Heras Pérez, M.A, & Jiménez Pérez, R. (2011). La enseñanza del ser vivo en primaria a través de una secuencia de estrategias indagatorias. Alambique: Didáctica de las Ciencias Experimentales, 67, 71-78.
De las Heras Pérez, M.A., & Jiménez Pérez, R. (2011). Experiencias investigadoras para el estudio de los seres vivos en primaria. Investigación en la Escuela, 74, 35-44.
Martín del Pozo, R. (Coord.). (2013). Las ideas "científicas" de los alumnos y alumnas de primaria: Tareas, dibujos y textos. Madrid: Universidad Complutense.
Roberts, R.G.; Larson, A.C. (2009). Zoología. Principios Integrales. (14ª Edición). Madrid: Mcgraw-Hill
Rodríguez Miranda, F.P., De las Heras Pérez, M.A., Rodríguez Fernández, R., & Cañal de León, P. (2014). El conocimiento escolar sobre los animales y las plantas en primaria: Un análisis del contenido específico en los libros de texto. REEC: Revista Electrónica de Enseñanza de las Ciencias, 13 (1), 97-114.

Throughout the course, due to teaching needs, this bibliography may be updated, modified and completed, and students will be notified of the changes.

Other resources and complementary educational materials