SUBJECT TEACHING GUIDE

G1557 - Teaching the Earth Sciences and Earth Systems

Double Degree in Teaching in Early Childhood Education and Primary Education
First Degree in Primary Education Teaching

Academic year 2026-2027

1. IDENTIFYING DATA					
Degree	Double Degree in Teaching in Early Childhood Education and Primary Education First Degree in Primary Education Teaching			Type and Year	Optional Optional
Faculty	School of Teacher Training				
Discipline	Subject Area: Learning of Natural Sciences, Social Sciences and Mathematics Speciality in Experimental Sciences Module: Complementary or Specialised Training Module: Training in Teaching and the Discipline				
Course unit title and code	G1557 - Teaching the Earth Sciences and Earth Systems				
Number of ECTS credits allocated	6	Term		Semester based (1)	
Knowledge Field	Education sciences				
Web					
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. CIENCIAS DE LA TIERRA Y FISICA DE LA MATERIA CONDENSADA
Name of lecturer	PABLO CRUZ HERNANDEZ
E-mail	pablo.cruz@unican.es
Office	Facultad de Ciencias. Planta: + 2. DESPACHO PROFESORES (2019)
Other lecturers	IGNACIO DIAZ MARTINEZ

4. OBJECTIVES
To know the role of Earth Sciences in the curriculum of primary education
Knowing the importance of scientific literacy in Earth Sciences as the basis of personal training and face their application in the classroom
Promote scientific curiosity and general interest in Earth Sciences
Learn the importance of teaching Earth Science and Earth Systems outside of the classroom
Integrate the contents of Earth Sciences within our natural, social and cultural context.
Understand the basic principles of geology and know the different periods of geological time as well as the dating methods.
Understand the functioning of planet Earth both internally and externally.
Differentiate different types of rocks and the landscapes associated with different rock substrates and soils.
Understand the causes of climate change and the evolution of the climate throughout the history of the planet.
Promote actions that help students know how to respond to various natural disasters.
Promote school research in the field of Earth Sciences.

6. SUBJECT PROGRAM	
CONTENTS	
1	Principles of geology. Geologic time. Didactic examples
2	Structure and composition of the Earth, the atmosphere, the hydrosphere and the edaphosphere. Didactic models.
3	Plate tectonics and internal processes. Teaching of internal geological processes
4	External processes. Teaching of external geological processes
5	Geological resources: minerals, rocks, landscape, etc. Didactic examples
6	Evolution of climate over the past. Didactic models
7	Natural hazards. Risk protection practices in the school environment

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Thematic work: 20%; Students, during the teaching period, will carry out work in pairs on a topic indicated by the teacher. The work will consist of an oral presentation, as well as the submission of a report. Students who do not carry out or present this	Work	Yes	Yes	20,00
Laboratory/experimental practices: 50%; students must submit, at the end of the practice period, a portfolio with all the practices carried out, for evaluation by the teaching staff. Students who do not do the practices, or do not submit the portfolio, mu	Laboratory evaluation	Yes	Yes	50,00
Exam: 30%; The exam will consist of, at least, one question for each topic covered in the theory classes.	Written exam	Yes	Yes	30,00
TOTAL				100,00

Observations

If a student does not achieve the minimum required grade to pass an assessment, the overall grade for the course will be the lower value between 4.9 and the weighted average of all assessments.

In addition to laboratory practices, where possible, external activities related to the subject, such as field trips or educational visits, may be carried out. Such activities will be optional.

Spelling, Plagiarism, and Citation Standards Governing Student Work

Spelling:

It is understood that university students have acquired linguistic skills in relation to oral and written expression. Therefore, correct spelling (orthography, accentuation, and punctuation), grammar, and vocabulary in work and exams are paramount and mandatory as an essential condition for passing the course.

Plagiarism:

Regarding fraudulent completion (plagiarism) of assessment tests, the grade will be adjusted according to what is established in article 54.1 of the Evaluation Process Regulations at the University of Cantabria: “Fraudulent completion of tests or assessment activities will directly result in a failing grade of “0” for the course.”

Citation Standards:

Finally, the Center Board approved that the Faculty adopts the APA STANDARDS as the citation criterion for all academic work. Although these standards have different editions, as an initial reference, we attach the link to the BUC, hoping it will be helpful and a reference for your development:
http://web.unican.es/buc/recursos/guias-y-tutoriales/guia?g=28

Observations for part-time students

Students with partial registration must carry out a substitute project for the thematic work and, compulsorily, must carry out/deliver the laboratory practices.
They will also need to take the final exam.

8. BIBLIOGRAPHY AND TEACHING MATERIALS
BASIC
Cañal, P. (coord.) (2011) - Biología y Geología: complementos de formación disciplinar. Editorial Graó Barcelona: 208 pp.
Cañal, P. (coord.) (2011) - Didáctica de la biología y la geología. Editorial Graó Barcelona: 175 pp.
Carenas, M.B., Giner, J.L., González, J., y Pozo, M. (2014) - Geología. Ediciones Paraninfo, Madrid: 487 pp.
Luffiego, M. (coord.) (2005) - Ciencias de la Tierra y del Medio Ambiente. Consejería de Educación del Gobierno de Cantabria, Santander: 337 pp.
Monroe, J.S., Wicander, R. y Pozo, M. (2008) □ Geología. Dinámica y evolución de la Tierra. Paraninfo Cengage Learning, Madrid: 726 pp.
Tarbuck, E.J. y Lutgens, F.K. (2005) □ Ciencias de la Tierra. Una introducción a la geología física. Pearson Education, Madrid: 710 pp.