

**1. General information****Course:** GEOLOGY**Type:** BASIC**Degree:** 409 - CHEMISTRY**Center:** 1 - FACULTY OF SCIENCE AND CHEMICAL TECHNOLOGY**Year:** 1**Main language:** Spanish**Use of additional languages:****Web site:****Code:** 57304**ECTS credits:** 6**Academic year:** 2023-24**Group(s):** 20 23**Duration:** First semester**Second language:****English Friendly:** Y**Bilingual:** N**Lecturer:** CARLOS JESUS SANCHEZ JIMENEZ - Group(s): 20 23

Building/Office	Department	Phone number	Email	Office hours
Margarita Salas / 330	QUÍMICA FÍSICA	3431	carlos.sanchezj@uclm.es	The tutoring is requested by email and it will be attended in person or by videoconference.

2. Pre-Requisites

Not established

3. Justification in the curriculum, relation to other subjects and to the profession

Not established

4. Degree competences achieved in this course**Course competences**

Code	Description
CB01	Prove that they have acquired and understood knowledge in a subject area that derives from general secondary education and is appropriate to a level based on advanced course books, and includes updated and cutting-edge aspects of their field of knowledge.
CB03	Be able to gather and process relevant information (usually within their subject area) to give opinions, including reflections on relevant social, scientific or ethical issues.
E13	Identify and characterize the properties of different geological materials, deduce the physical-chemical mechanisms involved in their formation and know their applications
G05	Acquire and adapt new knowledge and techniques of any scientific-technical discipline with incidence in the chemical field
T03	Proper oral and written communication
T05	Organization and planning capacity
T09	Motivation for quality, job security and awareness of environmental issues, with knowledge of internationally recognized systems for the correct management of these aspects
T11	Ability to obtain bibliographic information, including Internet resources

5. Objectives or Learning Outcomes**Course learning outcomes****Description**

Know the structure and internal composition of the Earth, both from a point of view of its chemical and mineralogical composition, and from a mechanical point of view.

Know the crystalline matter from the point of view of symmetry, recognize the elements of symmetry that appear in crystals, classes and crystalline systems and know the main crystalline structures.

Acquire the capacity for synthesis and objectivity, and promoting all those values and attitudes inherent in scientific activity.

Learn to develop topics and acquire skills in oral and written exposure, developing their ability to work as a team.

Homogenize the knowledge of Geology already acquired by the students in the Secondary School courses and complete certain aspects that have not been previously studied with the necessary depth.

Know what is the origin and evolution of chemical elements, the rock cycle and the different types of rocks present on Earth.

Know the mineral concept, its classification and the different characteristics of each group.

To ensure that the student is able to search and select information in the field of Earth Sciences and is able to process and present it properly both orally and in writing.

Develop in the student the capacity of initiative to raise and solve problems of Geology, as well as to interpret the results obtained.

Know how to distinguish minerals and rocks, their characteristics and properties

Being able to distinguish the object of study of the branches of Geology: Geochemistry and Mineralogy and know the relationship between Chemistry and Geology.

6. Units / Contents**Unit 1: INTRODUCTION TO GEOLOGY****Unit 2: CONCEPT OF SIMETRY: SIMETRY OPERATORS AND SIMETRY OPERATIONS****Unit 3: POINT GROUPS: DEDUCTION****Unit 4: NETWORKS AND SPACE GROUPS**

Unit 5: CRYSTALLINE STRUCTURES AND THEIR DEFECTS

Unit 6: INTRODUCTION TO MINERALOGY: SYSTEMATIC MINERALOGY

Unit 7: GEOLOGICAL RESOURCES: MINERALS AND INDUSTRIAL ROCKS

Unit 8: GEOLOGICAL PROCESSES THAT FORM MINERALS AND ROCKS

Unit 9: SEMINAR 1: STEREOGRAPHIC PROJECTION

Unit 10: SEMINAR 2: SOLID CRYSTALLOGRAPHIC PROJECTION ADDITIONAL COMMENTS ON THE SYLLABUS

7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Lectures	CB03	1.2	30	N		Theory classes, dedicated to explaining the fundamental aspects of the syllabus. Students will be provided with the necessary didactic material to follow the course. Examples will be given to help them understand the concepts acquired (evaluable activity) and they will be instructed to acquire the relevant data so that they can make judgments and reflect on topics related to their academic training.
Class Attendance (practical) [ON-SITE]	Practical or hands-on activities	T05	0.8	20	N		Problems and practical cases that allow a better understanding of the subject will be solved with the active participation of the students (Evaluable activity).
Progress test [ON-SITE]	Assessment tests	T03	0.1	2.5	Y	N	
Progress test [ON-SITE]	Assessment tests	CB01	0.1	2.5	Y	N	
Final test [ON-SITE]	Assessment tests	T03	0.12	3	Y	Y	
Group tutoring sessions [ON-SITE]	Case Studies	G05	0.2	5	N		Resolution of doubts raised by the teacher and students.
Study and Exam Preparation [OFF-SITE]	Self-study	T05	2.28	57	N		Preparation of exams
Other off-site activity [OFF-SITE]	Problem solving and exercises	T11	1.2	30	N		Exercises to support the practical classes
Total:			6	150			
Total credits of in-class work: 2.52							Total class time hours: 63
Total credits of out of class work: 3.48							Total hours of out of class work: 87

As: Assessable training activity

Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

8. Evaluation criteria and Grading System

Evaluation System	Continuous assessment	Non-continuous evaluation*	Description
Progress Tests	70.00%	0.00%	The evaluation of these tests will consist of exams or progress tests. exams or progress tests. Those students who do not pass one or more of these partial tests will recover them in the ordinary exams.
Practical exam	30.00%	0.00%	The evaluation will consist of an exam of the practices carried out. Those students who do not pass these practices will be able to recover them in the ordinary call.
Final test	0.00%	100.00%	This test will be taken by those students whose evaluation is not continuous, examining all the mid-term exams, including the practicals. The percentage distribution will be the same as the one applied in the continuous evaluation (in the progress and practice tests).
Total:	100.00%	100.00%	

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject, an ordinary and an extraordinary one (evaluating 100% of the competences).

Evaluation criteria for the final exam:

Continuous assessment:

The final grade will be the sum of the grades obtained in the different progress tests and the practical exam. In order to pass the course, students must obtain a grade equal to or higher than 5, and the average of all the grades of the progress tests with a grade equal to or higher than 4 can be taken.

Non-continuous evaluation:

In the final test, students will be examined on the subject blocks failed in the continuous evaluation process, needing to pass the subject with a grade equal

to or higher than 5.0.

9. Assignments, course calendar and important dates	
Not related to the syllabus/contents	
Hours	hours
Progress test [PRESENCIAL][Assessment tests]	2.5
Progress test [PRESENCIAL][Assessment tests]	2.5
Final test [PRESENCIAL][Assessment tests]	3
Group tutoring sessions [PRESENCIAL][Case Studies]	5
Unit 1 (de 10): INTRODUCTION TO GEOLOGY	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	1
Other off-site activity [AUTÓNOMA][Problem solving and exercises]	1
Group 20:	
Initial date: 18-09-2023	End date: 22-09-2023
Group 23:	
Initial date: 18-09-2023	End date: 22-09-2023
Unit 2 (de 10): CONCEPT OF SIMETRY: SIMETRY OPERATORS AND SIMETRY OPERATIONS	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	4
Study and Exam Preparation [AUTÓNOMA][Self-study]	5
Other off-site activity [AUTÓNOMA][Problem solving and exercises]	3
Group 20:	
Initial date: 25-09-2023	End date: 29-09-2023
Group 23:	
Initial date: 25-09-2023	End date: 29-09-2023
Unit 3 (de 10): POINT GROUPS: DEDUCTION	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	4
Study and Exam Preparation [AUTÓNOMA][Self-study]	6
Other off-site activity [AUTÓNOMA][Problem solving and exercises]	3
Group 20:	
Initial date: 02-10-2023	End date: 06-10-2023
Group 23:	
Initial date: 02-10-2023	End date: 06-10-2023
Unit 4 (de 10): NETWORKS AND SPACE GROUPS	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	4
Study and Exam Preparation [AUTÓNOMA][Self-study]	6
Other off-site activity [AUTÓNOMA][Problem solving and exercises]	2
Group 20:	
Initial date: 09-10-2023	End date: 13-10-2023
Group 23:	
Initial date: 09-10-2023	End date: 13-10-2023
Unit 5 (de 10): CRYSTALLINE STRUCTURES AND THEIR DEFECTS	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	4
Study and Exam Preparation [AUTÓNOMA][Self-study]	7
Other off-site activity [AUTÓNOMA][Problem solving and exercises]	3
Group 20:	
Initial date: 16-10-2023	End date: 20-10-2023
Group 23:	
Initial date: 16-10-2023	End date: 20-10-2023
Unit 6 (de 10): NTRODUCTION TO MINERALOGY: SYSTEMATIC MINERALOGY	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	4
Study and Exam Preparation [AUTÓNOMA][Self-study]	4
Other off-site activity [AUTÓNOMA][Problem solving and exercises]	3
Group 20:	
Initial date: 23-10-2023	End date: 31-10-2023
Group 23:	
Initial date: 23-10-2023	End date: 31-10-2023
Unit 7 (de 10): GEOLOGICAL RESOURCES: MINERALS AND INDUSTRIAL ROCKS	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	4
Study and Exam Preparation [AUTÓNOMA][Self-study]	5
Other off-site activity [AUTÓNOMA][Problem solving and exercises]	4
Group 20:	
Initial date: 02-11-2023	End date: 09-11-2023

Group 23:	
Initial date: 02-11-2023	End date: 09-11-2021
Unit 8 (de 10): GEOLOGICAL PROCESSES THAT FORM MINERALS AND ROCKS	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Study and Exam Preparation [AUTÓNOMA][Self-study]	5
Other off-site activity [AUTÓNOMA][Problem solving and exercises]	4
Group 20:	
Initial date: 10-11-2023	End date: 17-11-2023
Group 23:	
Initial date: 10-11-2023	End date: 17-11-2023
Unit 9 (de 10): SEMINAR 1: STEREOGRAPHIC PROJECTION	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	1
Study and Exam Preparation [AUTÓNOMA][Self-study]	5
Other off-site activity [AUTÓNOMA][Problem solving and exercises]	3
Group 20:	
Initial date: 18-10-2023	End date: 23-10-2023
Group 23:	
Initial date: 18-10-2023	End date: 23-10-2023
Unit 10 (de 10): SEMINAR 2: SOLID CRYSTALLOGRAPHIC PROJECTION ADDITIONAL COMMENTS ON THE SYLLABUS	
Activities	Hours
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	20
Study and Exam Preparation [AUTÓNOMA][Self-study]	13
Other off-site activity [AUTÓNOMA][Problem solving and exercises]	4
Group 20:	
Initial date: 23-10-2023	End date: 24-11-2023
Group 23:	
Initial date: 22-11-2021	End date: 24-11-2023
Global activity	
Activities	hours
Study and Exam Preparation [AUTÓNOMA][Self-study]	57
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	20
Progress test [PRESENCIAL][Assessment tests]	2.5
Final test [PRESENCIAL][Assessment tests]	3
Group tutoring sessions [PRESENCIAL][Case Studies]	5
Progress test [PRESENCIAL][Assessment tests]	2.5
Other off-site activity [AUTÓNOMA][Problem solving and exercises]	30
Class Attendance (theory) [PRESENCIAL][Lectures]	30
Total horas: 150	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Lopez Jimeno C.	Rocas ornamentales	LOEMCO edt.			1995	
Tarbucc E y Lutgens F	Ciencias de la Tierra	Prentice Hall			2005	
Wicander R y Monroe JS	Fundamentos de Geología	Thomson Ed			2000	
Bustillo M y Lopez Jimeno C.	Recursos Minerales	Entorno gráfico			1996	
Castro A.	Petrografía básica	Parinfo			1989	
Pozo M, González J y Giner J	Geología práctica	Pearson Ed.			2004	
Díaz Mauriño C.	Prácticas de mineralogía	Alhambra SL			1988	
Bastida F.	Una visión moderna de las Ciencias de la Tierra .Vol 2				2005	
Bastida F.	Ciencias de la Tierra .Vol 1				1998	
Monroe Js, Wicander R y Pozo M	Geología: dinámica y evolución de la Tierra	Paraninfo				
Vera JA. et al	Geología de España	Edelvives			2000	
Nesse WD	Introduction to Mineralogy	Oxfor Univ.			2009	
Anguita F. et al	Geología: Procesos internos	Edelvives			1991	
Anguita F. et al	Origen e Historia de la Tierra	Rueda			1988	
Hurburt CS y Klein C	Manual de mineralogía de Dana	Reverté SA			1989	
Vazquez F.	Geología económica de los recursos minerales	Fundac, Gomez Pardo Edt.			1990	
Gibson W y Moreno T.	The geology of Spain	Geol. Soc. Edt.			2006	
Ancochea F. et al	Geología: Procesos externos	Edelvives			1993	
Kuzwart M.	Industrial minerals and rocks	Elsevier			1984	