



Universidad
de Huelva

Doble Grado en CIENCIAS AMBIENTALES Y GEOLOGÍA



Curso 2020/2021

DOBLE GRADO EN CIENCIAS AMBIENTALES Y GEOLOGÍA

DATOS DE LA ASIGNATURA

| | | | |
|--------------|-------------------------|----------------------|------------------------------|
| ASIGNATURA | FUNDAMENTALS OF GEOLOGY | SUBJECT | FUNDAMENTALS OF GEOLOGY |
| CÓDIGO | 757914102 | | |
| MÓDULO | MATERIAS BÁSICAS | MATERIA | GEOLOGÍA |
| CURSO | 1º | CUATRIMESTRE | 1º |
| DEPARTAMENTO | CIENCIAS DE LA TIERRA | ÁREA DE CONOCIMIENTO | CRISTALOGRAFÍA Y MINERALOGÍA |
| CARÁCTER | BÁSICA | CAMPUS VIRTUAL | MOODLE |

DISTRIBUCIÓN DE CRÉDITOS

| | TOTAL | TEÓRICOS GRUPO GRANDE | TEÓRICOS GRUPO REDUCIDO | PRÁCTICAS DE INFORMÁTICA | PRÁCTICAS DE LABORATORIO | PRÁCTICAS DE CAMPO |
|------|-------|-----------------------|-------------------------|--------------------------|--------------------------|--------------------|
| ECTS | 6 | 3 | 0 | 0 | 2 | 1 |

DATOS DEL PROFESORADO

COORDINADOR

| | | | |
|----------------------|------------------------------|----------------|-----------|
| NOMBRE | JOSÉ MIGUEL NIETO LIÑÁN | | |
| DEPARTAMENTO | CIENCIAS DE LA TIERRA | | |
| ÁREA DE CONOCIMIENTO | CRISTALOGRAFÍA Y MINERALOGÍA | | |
| UBICACIÓN | FAC. CCEE P3N208 | | |
| CORREO ELECTRÓNICO | jmnieto@uhu.es | TELÉFONO | 959219824 |
| URL WEB | | CAMPUS VIRTUAL | MOODLE |

OTROS DOCENTES

| | | | |
|----------------------|------------------------------|----------------|-----------|
| NOMBRE | RAFAEL PÉREZ LÓPEZ | | |
| DEPARTAMENTO | CIENCIAS DE LA TIERRA | | |
| ÁREA DE CONOCIMIENTO | CRISTALOGRAFÍA Y MINERALOGÍA | | |
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DESCRIPCIÓN GENERAL DE LA ASIGNATURA

DESCRIPCIÓN GENERAL

The subject is an introduction to the Fundamentals of Geology. It is taught in the first year of the Degrees on Geology and Environmental Sciences with the aim of showing the basic knowledge of theory and practical work on Geology, including: the Geological Time Scale, Geological Materials, Internal Geological Processes (Magmatism, Metamorphism, Deformation, etc.), and Global Tectonics.



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ABSTRACT

The subject is an introduction to the Fundamentals of Geology. It is taught in the first year of the Degrees on Geology and Environmental Sciences with the aim of showing the basic knowledge of theory and practical work on Geology, including: the Geological Time Scale, Geological Materials, Internal Geological Processes (Magmatism, Metamorphism, Deformation, etc.), and Global Tectonics.

OBJETIVOS: RESULTADOS DEL APRENDIZAJE

By the end of the course students should be able:

- To know and understand the terminology, fundamental concepts and principles of Geology.
- To know the basic structure of the Earth, its composition and evolution.
- To identify the most common minerals and rocks

REPERCUSIÓN EN EL PERFIL PROFESIONAL

This subject allows the acquisition of skills essential for the development of basic geological task, such as classification of minerals and rocks, recognition and measurements of geological structures, geochronological applications or the use of geophysical tools, among others.

RECOMENDACIONES AL ALUMNADO

Previous notions of Geology are recommended. The course is designed for students of Earth & Environmental Sciences. For other students please contact the teaching staff.

COMPETENCIAS

Las competencias básicas, generales, transversales y específicas se encuentran detalladas en las guías docentes de estas asignaturas en el Grado en Geología y/o Ciencias Ambientales.

TEMARIO Y DESCRIPCIÓN DE LOS CONTENIDOS

TEORÍA

INTRODUCTION

Lesson 1. Introduction to Geology. The Earth in the context of the universe and the Solar System. Structure and composition of the Earth.

Lesson 2.- The Geological Time Scale. Relative and absolute dating.

GEOLOGICAL MATERIALS

Lesson 3.- Minerals: structural characteristics and classification. Minerals of petrogenetic and economic interest.

Lesson 4.- Classification of rocks. Basic concepts of petrography.

INTERNAL PROCESSES

Lesson 5.- Magmas: definition and physical properties. Magmatic differentiation processes. Intrusive bodies and volcanic buildings.



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Lesson 6.- Metamorphism and metasomatism. Types of metamorphism and metamorphic facies.

Lesson 7.- Deformation and fracturing of rocks. Folds: elements, symmetry and classifications. Fractures: elements and main types.

Lesson 8.- Earthquakes: concepts, origin and effects. Seismology: seismographs, seismograms and seismic waves. Earthquakes magnitude and location.

Lesson 9.- Magnetism, Gravity and Internal Heat of the Earth. Earth magnetic field and Paleomagnetism. Gravity and terrestrial gravitational field. Gravimeters and gravitational anomalies. The internal heat of the Earth and the geothermal gradient

GLOBAL TECTONICS

Lesson 10.- Tests of continental drift and ocean expansion. Tectonic plates and types of plate limits. Magmatism and metamorphism in relation to Plate Tectonics.

PRÁCTICAS DE LABORATORIO

- 1.- Tools for the identification of minerals and rocks.
- 2.- Identification of common non-silicate minerals.
- 3.- Identification of common silicate minerals.
- 4.- Basic concepts of petrography: textures, structures and classification of rocks.
- 5.- Identification of common igneous rocks
- 6.- Identification of common metamorphic rocks
- 7.- Identification of common sedimentary rocks.

PRÁCTICAS DE CAMPO

- 1.- Fieldwork on young rocks and geological formations from the Guadalquivir basin and related Mesozoic materials.
- 2.- Fieldwork on old rocks and geological formations from the Iberian Massif.

METODOLOGÍA DOCENTE

| | |
|--------------------------|---|
| Grupo grande | <ul style="list-style-type: none"> • Método expositivo (lección magistral). • Exposiciones audiovisuales. • Resolución de ejercicios y problemas. • Ejercicios de autoevaluación, resolución de dudas. • Aprendizaje cooperativo. • Atención personalizada a los estudiantes. |
| Prácticas de laboratorio | <ul style="list-style-type: none"> • Exposiciones audiovisuales. • Resolución de ejercicios y problemas. • Aprendizaje cooperativo. • Atención personalizada a los estudiantes. |
| Prácticas de campo | <ul style="list-style-type: none"> • Método expositivo (lección magistral). • Estudio de casos. • Aprendizaje cooperativo. • Atención personalizada a los estudiantes. |



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CRONOGRAMA ORIENTATIVO I

| SEMANAS (S): | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S10 | S11 | S12 | S13 | S14 | S15 |
|--------------------------|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
| GRUPO GRANDE | X | X | X | X | X | X | X | X | X | X | X | X | X | X | |
| GRUPO REDUCIDO | | | | | | | | | | | | | | | |
| PRÁCTICAS DE LABORATORIO | X | X | X | X | X | X | X | X | X | X | | | | | |
| PRÁCTICAS DE INFORMÁTICA | | | | | | | | | | | | | | | |
| PRÁCTICAS DE CAMPO | | | | | | | | X | | | X | | | | |

EVALUACIÓN DE LA ASIGNATURA

PRIMERA EVALUACIÓN ORDINARIA (FEBRERO/JUNIO)

EVALUACIÓN CONTINUA

The system of continuous evaluation of the subject will be divided into the following three components:

- Theory contents:** The grade for this part will constitute 70% of the overall score for the course. It will be evaluated through: (1) test-type or immediate response exams on the theory contents at the end of each lesson or (2) a final theory exam that will consist of answering a series of open-ended questions. The student will be able to choose the evaluation system of the theory contents.
- Laboratory practices:** The grade for this part will constitute 15% of the overall score for the course. It will be evaluated through a laboratory report prepared throughout the course on mineral and rock identification exercises.
- Fieldwork practices:** The grade for this part will constitute 15% of the overall score for the course. It will be evaluated through a report on field practices.

Each part will be evaluated in terms of a numerical scale from 0 to 10. Students are required to obtain a minimum of 4 in each part to make the final average grade. Final results will be given using the final average grade taking into account the percentages, with the corresponding qualitative ratings below: • <=4.9: Fail (D) • 5.0 - 6.9: Pass (C) • 7.0 - 8.9: Pass with Merit (B) • 9.0 - 10: Distinction (A).

EVALUACIÓN FINAL

Those students that have not properly followed the course or those that choose to have a single assessment will sit a final exam. The single final evaluation will consist of a written test in which 70% of the score will correspond to questions related to the contents of the theory program and the remaining 30% to the contents explained in the laboratory and fieldwork practices.

¿Contempla una evaluación parcial?

NO

SEGUNDA EVALUACIÓN ORDINARIA

A final exam accounting for 100% of the score. This exam will include questions related to the contents of the theory program (70%) and contents explained in the laboratory and fieldwork practices (30%). Those students that have properly followed the course throughout the continuous evaluation will be able to maintain for this section the score of those parts passed (with a minimum of 5) during the first evaluation.



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TERCERA EVALUACIÓN ORDINARIA Y OTRAS EVALUACIONES

A final exam accounting for 100% of the score. This exam will include questions related to the contents of the theory program (70%) and contents explained in the laboratory and fieldwork practices (30%). No grades will be transferred from previous evaluations.

OTROS CRITERIOS DE EVALUACIÓN

¿Contempla la posibilidad de subir nota una vez realizadas las pruebas?

NO

Requisitos para la concesión de matrícula de honor

Given that the number of enrolled students expected in this subject is less than 20, a single Honor Grade will be awarded, if applicable, to the highest score among the students who have obtained a score equal to or higher than 9.5.

REFERENCIAS

BÁSICAS

Frederick K. Lutgens & Edward J. Tarbuck (2018). Essentials of Geology, 13th Edition. Pearson. ISBN-13: 9780134446622

ESPECÍFICAS

Vincent Cronin (2018). Laboratory Manual in Physical Geology, 11th Edition. AGI American Geological Institute. Pearson. ISBN-13: 9780134675756