

**COURSE DATA****Data Subject**

<b>Code</b>	44309
<b>Name</b>	Management and conservation of palaeontological heritage
<b>Cycle</b>	Master's degree
<b>ECTS Credits</b>	3.0
<b>Academic year</b>	2023 - 2024

**Study (s)**

<b>Degree</b>	<b>Center</b>	<b>Acad. Period</b>	<b>year</b>
2200 - M. U. en Paleontología Aplicada	Faculty of Biological Sciences	1	Second term

**Subject-matter**

<b>Degree</b>	<b>Subject-matter</b>	<b>Character</b>
2200 - M. U. en Paleontología Aplicada	5 - Management of palaeontological heritage	Optional

**Coordination**

<b>Name</b>	<b>Department</b>
RUIZ SANCHEZ, FRANCISCO JAVIER	200 - Geology

**SUMMARY**

It is a subject on which addresses contained concepts in the current environment legislation, referring to the protection and conservation of the paleontological heritage, managing to interrelate this finger heritage with the different types of heritage natural members of the Sciences of the Earth and life. The analysis of inventories from casuistry in Spain allow for students to acquire global view of the current state of movable and immovable heritage and its importance as a resource no renewable in our society.

Through the work staff cases studies, achieved a self-supervised the different thematic blocks raised and the ability to use the resources will also be obtained paleontological as fundamental tools in the development and management of a territory. so be it acquires an approach applied in the heritage paleontological, the reason is presumed basic in anymodel of management present territorial.



## PREVIOUS KNOWLEDGE

### Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

### Other requirements

Knowledge basic about the structure organization of the administration Spanish for Heritage History and Environment.

## OUTCOMES

### 2200 - M. U. en Paleontología Aplicada

- Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.
- Students should be able to integrate knowledge and address the complexity of making informed judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities associated with the application of their knowledge and judgments.
- Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.
- Students should demonstrate self-directed learning skills for continued academic growth.
- Students should possess and understand foundational knowledge that enables original thinking and research in the field.
- Be able to access to information tools in other areas of knowledge and use them properly.
- Be able to communicate and disseminate scientific ideas.
- Ser capaces de trabajar en equipo con eficiencia en su labor profesional o investigadora, adquiriendo la capacidad de participar en proyectos de investigación y colaboraciones científicas o tecnológicas
- Ser capaces de realizar una toma rápida y eficaz de decisiones en situaciones complejas de su labor profesional o investigadora, mediante el desarrollo de nuevas e innovadoras metodologías de trabajo adaptadas al ámbito científico/investigador, tecnológico o profesional en el que se desarrolle su actividad.
- Ser capaces de acceder a la información necesaria en el ámbito específico de la materia (bases de datos, artículos científicos, etc.) y tener suficiente criterio para su interpretación y empleo.
- Aplicar el razonamiento crítico y la argumentación desde criterios racionales.
- Aplicar la Ciencia desde la óptica social y económica, potenciando la transferencia del conocimiento a la Sociedad.
- Capacidad para preparar, redactar y exponer en público informes y proyectos de forma clara y coherente, defenderlos con rigor y tolerancia y responder satisfactoriamente a las críticas que pudieren derivarse de su exposición.



- Projectar la inquietud intelectual y fomentar la responsabilidad del propio aprendizaje.
- Asumir el compromiso ético y la sensibilidad hacia los problemas medioambientales, hacia el patrimonio natural y cultural.

## LEARNING OUTCOMES

Expose and analyze the different frameworks legislation existing in management and conservation of Heritage Paleontology and Natural in all the their fields territorial order to acquire the strategic knowledge of prevention, management and management of the Paleontological Heritage. the definition and study resources paleontological, taking as a model different bases data already existing in Spain, as well as the analysis of practical cases of the measures developed for his management, offers a multidisciplinary approach interrelating Paleontological Heritage / Society. The handling of this type of tools will provide a knowledge significant for the development of the various documents technical and administrative that today day is required in the different instruments regulating land in the context of assessing environmental strategy and the studies of environmental impact. The application of this type of management to different scenarios will introduce the students on the basis of a development local development.

## DESCRIPTION OF CONTENTS

### 1. THEORETICAL CONTENTS

Unit 1.- Geodiversity. Elements of geodiversity. Concepts of natural and geological heritage and paleontological. Type of heritage. Heritage furniture and heritage property. Valuation of the heritage.

Unite 2.- Distribution and representation at level of the Spanish State of the paleontological heritage. Inventory systems (databases).

Unit 3.- Basic notions on organization of the Spanish administration in reference to the protection of heritage cultural and natural: levels national, regional, provincial and local. European and international regulations. Foundations 's legal regulation of protection of paleontological heritage. Areas of competence at state and regional level.

Unite 4.- Legislative frame of: protection of the Cultural Heritage and of the Natural Heritage in the State Spanish and at the regional level. Substantive competence. The paleontological heritage in the Legislation of Heritage Cultural.

Unit 5.- The paleontological heritage to the legislation of protection of the Natural Heritage and of the law assessment of the impact on the environment.

Unit 6.- Figures of protection in the field of paleontological heritage. Models of management. Use of the values paleontological in the development of projects of dissemination: museums, parks, theme, others performances. Importance heritage of GSSP, localities types. Use in local development.



## 2. PRACTICAL CONTENTS

Practice 1.- Examples of integration of the paleontological heritage in the geological heritage.

Practice 2.- Inventory of paleontological heritage. Inventory. GIS tools in cartography. Topographic and geological maps. Elaboration of thematic cartography. Inventory of areas, Formations, points of interest, etc., based on their paleontological content. Design of areas of protection.

Practice 3.- Environmental Impact Assessment Procedures and Paleontological Heritage. Inventory. Geological Points of Interest. Urban Regulations (General Urban planning plans-PGOU). Application for a municipality in the province of Alicante.

## 3. SEMINARS

Seminar 1.- Conference on the administrative management of paleontological heritage in the Region of Murcia. (Gregorio Romero Sánchez, technician of the Historical Heritage Service of the General Directorate of Culture. Ministry of Education and Culture of the Region of Murcia).

Seminar 2.- Conference on Environmental Impact Assessment Procedures and paleontological heritage in the Valencian Community. (Technicians to be appointed from the Ministry of Agriculture, Environment, Climate Change and Rural Development)

## WORKLOAD

ACTIVITY	Hours	% To be attended
Laboratory practices	18,00	100
Theory classes	10,00	100
Seminars	2,00	100
<b>TOTAL</b>	<b>30,00</b>	

## TEACHING METHODOLOGY

### Theoretical and practical classes

- Lessons lectures with presentations by computer
- Face-to-face personal work of legislative practical cases
- Preparation and consultations database data with guidance of professor
- Writing reports with a teacher's guide on legislative practical cases



- Exhibition and public defense of the work done in groups
- Controls
- Tests and exams
- Output field

### **Classes practices of laboratory-cabinet**

- Introduction and planning of each practice
- Making observations, taking data, collecting information
- Evaluable individualized work:
  - Preparation and consultations database data with guidance of professor
  - Completion Report

### **Seminars:**

- Attendance at conferences and theoretical - practical seminars of specialists that complement the training received in other subjects
- Elaboration of diverse materials and documents in theoretical and practical activities
- Evaluable individualized work:
  - Preparation of reports on exposed content
  - Completion Report

## **EVALUATION**

The evaluation of the theoretical and practical aspects of the subject will be carried out by means of tests written individually or in groups, to long for the semester for assessment continuous of technical competences of the subject, in which questions of theoretical nature will be raised and related to practical assumptions, In the continuous assessment will also be taken into account the attendance and use of classes. This assessment will be complemented by the final test written, individually, of the subject.

The seminars will be valued according to the attendance and participation of the student in the discussion. The student will prepare a report which shows the its capacity of synthesis and interrelation of the concepts discussed.



The work of the practice of laboratory-cabinet evaluated by the rating of a Report performed individually, or in very small groups, focusing on the application of an assumption practical.

The weight (percentage on the final mark) of the aspects considered in the evaluation of the subject are reflected in the following table:

**Weighting assessment activities**

Final test	50%
Practices of laboratory	15%
Seminars reports	10%
Continuous assessment tests	25%

**REFERENCES****Basic**

- Carcavilla, L., López, J., Durán, J. 2007. Patrimonio geológico y geodiversidad: Investigación, conservación, gestión y relación con los espacios naturales protegidos Publicaciones del Instituto Geológico y Minero de España. Serie Cuadernos del Museo Geominero,7: 360 pp.
- Carcavilla, L. y Palacio, J. 2011. Metodología seguida para la preparación del libro "Proyecto Geosites": aportación al patrimonio geológico mundial, 62-67. Avances y retos en la conservación del Patrimonio Geológico de España: actas de la IX Reunión Nacional de la Comisión de Patrimonio Geológico (Sociedad Geológica de España), León, 14-18 de junio de 2011 / Esperanza Fernández Martínez (ed. lit.), Rodrigo Castaño de Luis (ed. lit.). ISBN 978-84-9773-578-0.
- Fernández-Martínez, E. y Castaño de Luis, R (eds.). 2011. Avances y retos en la conservación del Patrimonio Geológico de España. Actas de la IX Reunión Nacional de la Comisión de Patrimonio Geológico (Sociedad Geológica de España), León, 14-18 de junio de 2011. Universidad de León, Servicio de Publicaciones.
- Hunter, A.-W. et Donovan, S.-K. 2005. Field sampling bias, museum collections and completeness of the fossil record. *Lethaia*, vol. 38, pp. 305-314.
- Lago, M., Arranz, E., Andrés, J.A., Soria, A.R., Galé, C. 2001. Patrimonio Geológico: Bases para su estudio. Publicaciones del Consejo de Protección de la Naturaleza de Aragón. Serie: Investigación: 107 pp.
- Lipps J.H. 2009.- PaleoParks: Our paleontological heritage protected and conserved in the field worldwide.- In: Lipps, J.H. & Granier B.R.C. (eds.), *PaleoParks - The protection and conservation of fossil sites worldwide*. *Carnets de Géologie / Notebooks on Geology*, Brest, Book 2009/03, Chapter 01 (CG2009\_BOOK\_03/01)



### **Additional**

- Alcála, L. 2000. El patrimonio paleontológico turolense como recurso propio para el desarrollo cultural y turístico. Los retos de Teruel, 2000, ISBN 84-86982-98-7, págs. 541-546.
- Alcála, L. 2000. El patrimonio paleontológico turolense como recurso propio para el desarrollo cultural y turístico. Los retos de Teruel, 2000, ISBN 84-86982-98-7, págs. 541-546.
- Bruschi, V.M. 2007. Desarrollo de una metodología para la caracterización, evaluación y gestión de los recursos de la geodiversidad. Tesis doctoral. Universidad de Cantabria.
- Meléndez-Hevia, G. y Soria, M. 1997. Problemática actual de la legislación sobre patrimonio paleontológico en España: Medidas y soluciones. Zubía, ISSN 0213-4306, Nº 15, 1997, págs. 113-120.
- Morales, J., Gómez-Ruiz, E. y Azanza, B. 1999. El Patrimonio Paleontológico Español. Coloquios de Paleontología (ISSN 1132-1660), Nº 50, 53-61.
- López-Martínez, N. 1995. Los fósiles: patrimonio natural. Nº. 11, 1995 (Ejemplar dedicado a: Paleontología), págs. 54-58. Tierra y tecnología: revista de información geológica, ISSN 1131-5016.
- Robles, F., de Renzi, M., Montoya, P. y Belinchón, M. 1999. La paleontología y la Ley del Patrimonio Cultural valenciano: Propuestas y resultados. Coloquios de Paleontología, ISSN 1132-1660, Nº 50, 1999, págs. 37-44.
- Ruiz-Sánchez, F.J. 2005. La legislación de medio ambiente y la protección del patrimonio paleontológico en la Comunidad Valenciana (España). Revista española de paleontología, ISSN 0213-6937, Nº. Extra 10, 2005 (Ejemplar dedicado a: XIX Jornadas de Paleontología : "Flora y faunas del Mesozoico: paleoecología y paleoclimatología"), págs. 119-124